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Open Paper Bids for U.S. Printing Office

About 78,450,000 Pounds of Paper of All Varieties Are Bid On By 53 Bidders for a Period of Three Months Beginning July 1, 1943 —Current Bids Were Submitted With Numerous Conditions.

WASHINGTON, D. C., May 24, 1943—Bids were received today from 53 bidders for 78,450,000 pounds of paper for the use of the Government Printing Office for the three months period beginning July 1. At the last bid opening for a six months period in November, bids were received from 65 bidders. At today's opening the bids were surrounded by more conditions than any bids ever received by the Committee. The Joint Committee will meet on May 31 to consider making awards on today's opening.

Bids were received as follows (* in all cases means shipment 30 days):

Newsprint

No. 1—2,500,000 lbs., 24x36—64; rolls, 19, 24, 36 and 48 ins. wide (3-inch fiber cores, weight of cores and wrappers shall be included in net weight).

Marquette Paper Co. (600,000 lbs. only)	2.70c

Telephone Book News

No. 2—200,000 lbs., 24x36—45; rolls, 28 and 38 ins. wide (3-inch fiber cores). (Weight of cores and wrappers shall be included in the net weight.)

Cauthorne Paper Co.	4.79c
Lamy Paper Co.	5.56c

Machine-Finish Book

No. 3—300,000 lbs., 25x38—70; flat, cut 22½x31, and 31¼x45½ ins.

Graham Paper Co.	7.62c

No. 4—600,000 lbs., 25x38—70; flat, cut 24x38, and 38x48 ins.

Graham Paper Co.	7.62c
Barton, Duer & Koch Paper Co. (total tonnage 1,000,000 lbs. for lots 4, 5, 7, 8, 9, and 10)	7.47c

No. 5—600,000 lbs., 25x38—70; flat, cut 24x38, and 38x48 ins.

Stanford Paper Co. (400,000 lbs. only)	7.76c
Graham Paper Co.	7.62c
Barton, Duer & Koch Paper Co.	7.47c

No. 6—300,000 lbs., 25x38—70; rolls, 28½ ins. wide (3-inch fiber cores).

Bulkley, Dunton & Co.	7.48c
Graham Paper Co.	7.26c
Mudge Paper Co. (total tonnage 1,000,000 lbs. for lots 6 to 9 incl.)	7.26c
Marquette Paper Co.	6.93c
Frank Parsons Paper Co.	7.234c

No. 7—700,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch fiber cores).

Paper Corp. of U. S. (500,000 lbs. only)*	6.23c
(200,000 lbs. only)*	6.43c
Barton, Duer & Koch Paper Co.	7.19c
Mudge Paper Co.	7.26c
Marquette Paper Co. (420,000 lbs. only)	6.93c
(not limited tonnage)	7.26c
Frank Parsons Paper Co.	7.234c
Butler Co.	7.48c

No. 8—700,000 lbs., 25x38—70; rolls 19 and 38 ins. wide (3-inch fiber cores).

Paper Corp. of U. S. (500,000 lbs. only)*	6.23c
(200,000 lbs. only)*	6.43c
Barton, Duer & Koch Paper Co.	7.19c
Bermingham & Prosser Co.	7.48c
Mudge Paper Co.	7.26c
Central Ohio Paper Co. (540,000 lbs. only)	6.93c
Marquette Paper Co.	7.26c
Frank Parsons Paper Co.	7.234c

No. 9—300,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide (3-inch fiber cores).

Bulkley, Dunton & Co.	7.48c
Paper Corp. of U. S.	6.58c*
Barton, Duer & Koch Paper Co.	7.19c
Mudge Paper Co.	7.26c
Marquette Paper Co.	7.26c
Frank Parsons Paper Co.	7.234c

No. 10—300,000 lbs. 25x38—100; flat, cut 38x48 and 41x52 ins.

Stanford Paper Co.	7.06c
Graham Paper Co.	6.94c
Mead Soles Co. (100,000 lbs. only)	6.94c
Barton, Duer & Koch Paper Co.	6.87c

Machine-Finish Book End Paper

No. 18—60,000 lbs., for waste leaves; flat, cut 25x38—160; the grain to run the 38-inch way.

Paper Corp of U. S.	7.41c*
Wilcox, Walter Furlong Paper Co.	7.50c
Central Ohio Paper Co.	7.12c

Offset Book

No. 19—2,000,000 lbs., 25x38—80; flat, cut 38x48 ins., the grain to run lengthwise of the sheet.

Paper Corp. of U. S. (1,000,000 lbs. only)*	8.14c
(1,000,000 lbs. only)*	7.77c
Central Ohio Paper Co. (300,000 lbs. only)	7.12c
Aetna Paper Co. (200,000 lbs. only)	8.30c
Marquette Paper Co.	7.46c
	8.06c

No. 20—20,000 lbs., 25x38—90; flat, cut 34x44 ins., the grain to run lengthwise of the sheet.

Paper Corp. of U. S.	7.52c*
Aetna Paper Co.	7.90c
Marquette Paper Co.	8.06c

No. 21—2,000,000 lbs., 25x38—100 and 120; flat, cut 38x48 ins., grain to run lengthwise of the sheet.

Paper Corp. of U. S. (500,000 lbs. only)*	7.19c
(500,000 lbs. only)*	7.41c
R. P. Andrews Paper Co. (500,000 lbs. only)	7.07c
Whitaker Paper Co. (400,000 lbs. only)*	7.19c
Swigert Paper Co. (200,000 lbs. only)	7.69c
Aetna Paper Co. (200,000 lbs. only)	7.56c
Marquette Paper Co.	7.78c

Antique Book

No. 22—100,000 lbs., 25x38—100; flat, cut 38x50 ins.

Bulkley, Dunton & Co.	7.40c
Paper Corp. of U. S.	6.895c*
Wilcox Walter Furlong Paper Co.	7.20c
Meade Sales Co.	7.18c
Whitaker Paper Co.	7.26c
Central Ohio Paper Co.	7.05c

Lightweight Machine Finish Book

No. 23—40,000 lbs., 25x38—60; flat, cut 38x48 ins.

Bulkley, Dunton & Co.	8.58c
Graham Paper Co.	8.32c

50 Per Cent Lightweight Machine-Finish Book

No. 24—50,000 lbs., 25x38—60; flat, cut 38x48 ins. Min. order 10,000 lbs.

Paper Corp. of U. S.	15.57c
Old Dominion Paper Co.	17.47c
Bermingham & Prosser Co.	15.30c

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Paper Institute Holds Annual Conference

Executives and Technicians of Paper and Pulp Industry Attend Eighth Annual Meeting at Appleton—Former Ambassador J. C. Grew Featured Speaker—Senator Cites Work of Forest Laboratory.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 24, 1943—Approximately 250 executives and technicians of paper and pulp mills from all over the United States attended the eighth annual conference of executives of member mills of the Institute of Paper Chemistry, Appleton, Wis., Thursday and Friday of last week.

The outstanding event was the banquet at the North Shore Golf Club on Thursday evening when an address was given by Joseph C. Grew, American ambassador to Japan at the start of the war. He spent ten years in the Japanese capital and became thoroughly acquainted with the thinking and psychology of the Nipponese. He said Americans must be careful not to underestimate the strength and resourcefulness of their enemy, and indicated his belief that a long and hard struggle is ahead.

There is no such thing as freedom in Japan, Mr. Grew said, adding that the Japanese are at the present moment fighting for "their traditional unfreedom." They are fighting us, he said, because for hundreds of years they have been propagandized by an intellectual and political system which left no room for freedom.

"The Japanese we fight are equipped with a cause," the speaker remarked. "Though it is a bad cause, they adhere to it with a devotion which merits a nobler objective. The Japanese have a tough, well-trained army and navy and they have an air force at which we cannot laugh. On the home front they are industrious, frugal, obedient, loyal and united. They have made their three huge islands into three gigantic naval and military bases which must be silenced, one by one."

Mr. Grew said the Japanese have every intention of invading the United States when they are ready. They have announced this intention, and he expects them to try it. This is the enemy the United States has to defeat, he indicated, and expressed his belief that this country would eventually defeat the Japanese, but that it is extremely dangerous for the American people to under-estimate their enemy or to expect an easy time in disposing of him.

After arrival of the executives Thursday morning, they were escorted on a tour of the Institute, and inspected a new building recently completed. At noon they attended a luncheon at the North Shore Golf club at which Dr. Westbrook Steele, executive director, gave a review of operations, activities and accomplishments. D. C. Everest, president of the Marathon Paper Mills Company, Rothschild, Wis., and vice-president of the Institute board of trustees, presided.

Students Present Discourses

Student discourses also were presented as follows: George E. Martin, "The Injection Pulping of Cottonwood with Conductrometric Control"; Jules J. Perot, Jr., "The Filtration of Smokes by Paper: a Study of the Effect of Variations in Paper Structure on the Relative Efficiency of Smoke Filters"; Arthur J. Haug, "Linoleic Acid Esters of Cellulose"; Joseph C. Clark, Jr., "The Esters of Certain Lignin Derivatives," and Gary W. Jones, "Preparation of Ethers of Certain Lignin Derivatives." A golf tournament followed, during the late afternoon.

Further student discourses were given at the Friday morning session, with Dr. Harry F. Lewis, dean of the Institute, presiding. They were by: Robert E. March, "Technical Application of the Manno-Galactans," and Curtis S. Walseth, "The Physical and Chemical Characteristics of Sufonated Rosin."

Staff Discussions Held

Staff discussions also were held, including: Dr. Willis M. Van Horn, "A Study of Stream Pollutional Aspects of Mill Antiseptics"; Dr. J. William Appling, "Immunization of Bacteria"; Dr. Ben W. Rowland, "New Developments from the Colloid Laboratory in Fields of Waterproof Adhesives, Plant Mucilages and Wheat Starch," and Dr. George R. Sears, "The Electron Microscope and Grenz Ray Apparatus."

Dr. Thomas N. Barrows, president of Lawrence College, with which the Institute is affiliated, presided at a luncheon Friday noon. The speaker was Dr. G. A. Borgese, professor of Italian languages at the University of Chicago. Further student discourses were: Edwin J. Loutzenheiser, Jr., "The Technical Possibilities of Vulcanized Oil Compositions" and Keith W. Max, "The Difference Between the Nature of the Constituents of Tall Oil from the Kraft Black Liquors of Green Slash Pine and Seasoned Slash Pine."

Kimberly-Clark Given Army Banner

The Kimberly-Clark Corporation, which converted its Kimlark mill at Neenah, Wis., to production of gun mounts for the Army, was presented with the United States Army ordnance banner at ceremonies May 19 by Major H. J. Prebenson, of the Chicago ordnance district, for an "Outstanding production achievement and a good job well done."

Noon-day ceremonies were held with 335 employees, officers and office personnel attending. Major Prebensen mentioned the accomplishments of Kimberly-Clark Corporation in converting its plant to ordnance, and the transition of the uninitiated "papermaker" into an expert assembler of ordnance material, stating "Of all these accomplishments you can be justly proud, for they represent a major contribution to the prosecution of the war."

Ernst Mahler, executive vice-president, acted as master of ceremonies. C. W. Nelson, former chief engineer of the corporation, and since inauguration of the ordnance division, general manager of that section, told his audience that on May 11, 1942, the corporation offered its internal and external engineering facilities together with a formidable pool of tools and skilled workers. Negotiations were begun May 28, the contract was received from the government July 15, and the ordnance division of the Kimberly-Clark Corporation, with its far-flung sub-contracting field, came into production in January of this year.

Cola G. Parker, Kimberly-Clark president, pointed out that nine months and 20 days ago, the Kimlark mill stopped manufacture of wall paper. Today, less than 300 days since the conversion, it is engaged in making weapons of war. He said that in the last 271 days of production there were no lost-time accidents among the 249 members of the plant crew, despite an entirely new undertaking. He emphasized that there was less than .02 per cent of non-essential absenteeism. One hundred per cent of the personnel is buying war bonds.

Mr. Parker gave recognition to Mr. Mahler, to whom supervision of the ordnance project was turned over at the inception of the program, and to those who have directed it.

George Ritten accepted the banner on behalf of the employees.

At another program May 19 at Kimberly, Wis., President Parker presented plaques to ten departments of the Kimberly mill whose employees are 100 per cent in buying war bonds and using ten per cent of their pay for this purpose. The gathering was a celebration of the village's record in selling $177,000 worth of bonds during the second victory loan drive. The main speaker of the evening was Lieut. (J.G.) W. W. Hall of Milwaukee. J. T. Doerfler, mill manager, chairman of the drive, gave a summary of the achievement, and Ray Haase, president of the paper mill workers' union, also spoke.

Cites Work of U. S. Forest Laboratory

Senator Alexander Wiley of Eau Claire, Wis., on the eve of hearings by the Senate appropriations committee, is pointing out the accomplishments of the United States Forest Products Laboratory, Madison, Wis., and insisting that it "must be maintained at peak efficiency." He points out that it has already developed over 1,000 packaging specifications and has trained more than 1,000 inspectors. The savings effected in shipping space alone, resulting from this research, is larger than all of the costs to run the laboratory since its inception over 30 years ago, the senator said.

Safety Conference Meets June 10

The Wisconsin River Valley Safety Conference will be held at Merrill, Wis., June 10, with Cliff Boulet of the Wisconsin Public Service Corporation, Milwaukee, Wis., as the principal speaker at a foreman's noon luncheon. A program is being developed for the sectional meeting of the pulp and paper group.

Badger Mills Aids Visiting Gardeners

The Badger Paper Mills, Inc., Peshtigo, Wis., has plowed up two acres of its land near its pulp mill. It will be dragged and prepared for use of employees for victory gardens.

Submits Bids on Currency Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 26, 1943—The Treasury Department has received bids for paper for printing currency and public debt securities. Crane & Co. bid was for 39 cents for currency and 28½ cents for bonds. The present contract now held by Crane & Co. is 40½ cents for currency and 32½ cents for bond. The Department also received a bid from the Carew Manufacturing Company for 100 tons and 200 tons bond. The bid from Carew for bond paper was at 32½ cents for 200 tons and 33½ cents for 100 tons.

Asks Further Newsprint Curtailment

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 26, 1943—The country's newspaper publishers, who produce 1,787 daily newspapers, were asked today to economize further in curtailing the use of newsprint by W. G. Chandler, Director, and H. N. Bitner, Deputy Director of the Printing and Publishing Division, War Production Board.

A study of actual inventories shows an unanticipated shortage which must be met by the complete cooperation of the publishers themselves or their present quotas will have to be curtailed by WPB limitations.

The joint statement of Messrs. Chandler and Bitner follows:

"The newsprint situation in the United States is serious.

"It was expected that WPB General Limitation Order L-240, issued last December 31, would effect a saving in newsprint use in the United States of approximately 10 per cent.

"This expectation is not being fulfilled.

"The latest American Newspaper Publishers Association figures indicate only a 5 per cent reduction from 1941 for the first four months of this year. The reduction is only about 2½ per cent under the first four months of 1942.

"The necessity for further voluntary curtailment now is urgent.

"Canadian shipments to the United States in the first four months of 1943 were at an annual rate of only 2,400,000 tons, which would be 120,000 tons under the expected rate.

"Canada expects to be able to supply its quota through the third quarter of this year. But that may not be enough to prevent another horizontal cut affecting all newspapers.

"Recently assurance was given that no additional cut in usage would be necessary through the third quarter of 1943 if-and-only if—American newspapers reduced usage to 90 per cent of 1941 consumption.

"Requests for additional tonnage in the present quarter, filed in accordance with the provisions of Limitation Order L-240, which seeks to prevent undue hardship, are in many instances higher than relief afforded in the first quarter, which was an adjustment period. Unfortunately, it is not possible for newspapers to continue under present limitations without making additional sacrifices."

Greaseproof Papers for Ordnance Use

Special Technical Bulletin No. 3, issued by the War Products Development Section, Pulp and Paper Division, War Production Board, Washington, D. C., concerns the Packaging Section of Ordnance, and requirements of greaseproof paper for wrapping metal parts and equipment exclusively for Army Ordnance. It gives details of the special qualities required, such as moldability, greaseproofness, etc., in the three types of greaseproof papers desired. The Packaging Section of the Ordnance Department states it is very anxious to cooperate in any way possible in the development of greaseproof wrapping. It suggests that paper manufacturers, or converters, interested, make tests on papers available or that can be developed and then submit them to the War Products Development Section, which will arrange to have them tested before submission for final evaluation. A dozen samples, 8½ by 11 inches, will be sufficient.

Paper Demand is Very Strong in Midwest

Groundwood, Newsprint, Kraft, Book and Cover Papers Are Reported Very Active With Heavier Buying of Paper Board and Specialty Papers—Backlog Orders of Sulphite Grades Are Increasing

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 24, 1943—The Chicago paper market is really in a turmoil following the War Production Board's latest order that all pulp producers reserve twenty per cent of their output, as of June 1, to be held ready for government essential war requirements. The news of this allocation has intensified the local situation and enhanced the already heavy demand. As a result, mills here are reported as not accepting orders from the trade unless they have a really essential background. It follows that the "end use essentiality" program of the paper industry becomes even more a necessity than heretofore. There is no break in the entire field as far as demand and curtailed supply is concerned. Krafts were very strong while all grades of sulphites were booked ahead for many weeks. Books and covers were finding it increasingly difficult to provide service for heavy buyers. The paper box market was running into increasing difficulties because of raw material scarcities, manpower shortages and the fuel situation. Heavy rains in this area were likewise adding to the problem. Even in the waste paper trade where collections had improved somewhat, there was no indication of anything but increased strength all along the line.

Colonel Armstrong Draws Record Crowd

A record breaking crowd of paper salesmen and guests turned out on Monday noon, May 17, to pay homage to a distinguished member of the paper trade, Colonel Paul G. Armstrong, director of selective service for the State of Illinois. Colonel Armstrong, guest speaker for the western division of the Salesmens Association of the Paper Industry became affiliated with Parker Thomas & Tucker in 1919 and is now vice president of that well known Chicago jobber firm.

In 1940 Colonel Armstrong became head of selective service under appointment of the late Governor Horner. Prior to that time he had served as State Commander of the American Legion for two years and had turned down the opportunity to be National Commander of the Legion because of his selective service duties. Under Colonel Armstrong's leadership, the State selective service procedure has received high compliment from Major General Lewis Hershey as among the best state systems of the country.

Colonel Armstrong told of the methods of drafting and inducting, paid a high compliment to the local draft boards and the patriotism of the entire State and added his belief that fathers under 38 years of age would become members of an army of 10,810,000 by Fall.

At the same meeting of the SAPEYES further announcement of the first of the summer golf outings was made. According to Herman Berge of the Appleton Coated Paper Company, golf chairman, the "lid" will be officially pried off on June 18 at the Park Ridge Country Club. Despite the War and transportation difficulties, the monthly events are still expected to draw very well.

Consolidated Makes Less Newsprint

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 10, 1943—The newsprint mills of the Consolidated Paper Corporation, operated at 50% of capacity in the first quarter of this year, as contrasted with 73% for the like period a year ago. An improvement in operations is possible depending on the relaxation of the power control, shipping and other regulations, L. J. Belnap, president, informed shareholders at the annual general meeting.

Labor shortage, particularly in woods operations, is a continuing problem for all forest industries, Mr. Belnap said. He noted that last month the ceiling price of newsprint was increased by $4 a ton, but this, he pointed out, only partly compensated for increased costs. Reviewing last year's operations, Mr. Belnap stated the corporation's mills operated at 60% of the official rate of capacity compared with 70% in the preceding year. Output of other products continued at capacity.

It has been necessary to defer the program inaugurated three years ago of improvement and modernization of the plant and equipment because of the shortage of labor, technical staff and strict limitation of the use of materials. It has also been necessary, for the same reasons, to reduce maintenance to urgent requirements. After the end of the war, all this work will necessarily have to be accelerated to make up for the past deferment, the effects of which will be to provide more employment for those now employed in war industries and returned men. The company's sawmill at Pembroke was destroyed by fire last year. At the request of the timber controller it was reconstructed and operated during the last half of 1942. During the coming season, Mr. Belnap said, it is expected the mill will operate at capacity.

"Creed For Americans"

It is interesting to note that the advertisement of Gottesman & Company, Inc., "Creed for Americans", on the front cover of this issue of the PAPER TRADE JOURNAL, is a reproduction verbatim of a leaflet that the company circulated almost exactly twenty-five years ago.

As the advertisement states, "Creed for Americans" was adopted by the House of Representatives on April 3, 1918, during the first World War.

Impressed with the import of the message it conveyed, Gottesman & Company distributed it widely throughout the trade. It was the subject of great commendation.

Believing that the same Credo has today even more timeliness and significance than it did a quarter-century ago, Gottesman & Company are without cost again making available large reproductions of the resolution, attractively printed and suitable for framing. They may be had upon request to Gottesman & Company at its New York offices at 22 East 40th Street.

Reports Another Transfer of Timber Lands

Sale of 210,000 Acres on Restigouche River in New Brunswick Follows Recent Purchase by Fraser Companies From Same Company—How Sweden is Utilizing Dead Trees to Make Valuable Products.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 24, 1943—Another big transfer of timber lands owned by the New Brunswick Railway Company is reported in the sale of 210,000 acres on the Restigouche River in Northern New Brunswick to the K. C. Irving interests, of Saint John, N. B. Only recently it was announced that the Fraser Companies, Ltd., of Edmonton, N. B., had purchased from the same company holdings on the Tobique River comprising an area of between 600,000 and 700,000 acres.

The amount of money involved in the sale to the Irving interests has not been stated.

Mr. Irving has been one of the leading gasoline and oil distributors in Canada, and, in recent years, has developed many other lines some of which are connected with forest products. He is a controlling factor in Canada Veneers Ltd., Saint John, which turns out much material for aircraft and is one of the largest establishments of its kind in the Empire, and, of comparatively recent date, he purchased a pulp mill at Dexter, N. Y., on the St. Lawrence River. In recent months he became associated with d'Auteuil Lumber Company which operates in Quebec. It is understood that the purchase of the 210,000 acres from the New Brunswick Railway Company was made in the name of this firm. While it is not stated to what purpose the new owner will put these lands it is believed that Mr. Irving will further extend his operations in forestry activities.

Some of the lumber mills in the vicinity of the new Irving holdings have been getting their supplies of long lumber from the tract purchased by Mr. Irving. What the arrangements, in the respect, under the new ownership will be has not been stated.

Sweden Making Products from Dead Trees

A dispatch just received here from Stockholm gives some interesting particulars of the manner in which Sweden is utilizing dead trees and tree stumps for the purpose of extracting industrial and motor oil to compensate for the lack of imported liquid fuel. The dispatch says:

"In practically all forests there are very large quantities of dead trees or other trees unfit for sawing of pulp-making, and which have been left standing in the forests, being considered of small value. Such trees, especially of pine, are, however, exceptionally resinous and therefore constitute a valuable raw material for obtaining many distilled products.

"For the special purpose of utilizing this waste wood a big wood-distillation works has recently been built in the north of Sweden. From the forests the timber is floated down to this works, where it is piled up to dry, being then split into billets and fed into the retorts. There are 12 of these, with an aggregate capacity of about 1,000 cubic yards of wood in 24 hours, and when working at full capacity the plant uses up about the same quantity of wood as a pulp mill with an annual output of 100,000 tons.

"The gases from the retorts are conducted to a large condensing plant, where after various processes several products are recovered. The most important product just now is so-called motor tar, which is used as a substitute for motor-fuel oil by a large part of the sea-going Swedish fishing fleet. However, considerable quantities of such valuable products as alcohol and turpentine are also obtained. In the near future the acetic products and phenols in the waste liquid will also be recovered. After the distillation process the wood has been converted into a high-grade charcoal—especially coveted by the iron works—which, however, in this instance is regarded as a by-product.

"The plant is owned by the Swedish State Board of Forests and Crown Lands. While if quite exceptional importance under the conditions ruling at present, it is not merely an emergency enterprise, as it is considered that a great many industries in Sweden will in the future be based on derivatives from wood. In wood tar alone have been found 112 organic substances, and there is practically an unlimited field for future research. Swedish scientists and engineers have already advanced far into the field of wood chemistry and at present this research activity is being extended and intensified all along the line."

R. K. Ferguson Heads Paper Division

A quota of $50,000 has been accepted by the paper division of the Greater New York Fund, it was announced by Roy K. Ferguson, president of the St. Regis Paper Company, chairman of the division, following a committee luncheon meeting held recently at the Yale Club, Vanderbilt Avenue and 44th street, New York City. The gathering, comprising outstanding executives of the most prominent firms in the field, launched the 1943 effort of the industry on behalf of the 406 voluntary hospitals, health and welfare agencies affiliated with the Fund.

"To do the job that must be done this year, the agencies need more than $76,000,000," Mr. Ferguson said. "Fifty-five millions of the required total are realized through fees and endowment income. The remainder—some twenty-one million—must be raised through the community's generosity. Of this sum more than sixteen and a half millions are obtained by the agencies from individuals, partnerships, privately owned firms and foundations. The agencies look to the Fund for the rest. This year, therefore, our job will be to raise a minimum of $4,500,000."

Agreement was reached at the luncheon conference to solicit every possible firm in the paper industry, keying the solicitation to the Fund's slogan: "In War and Peace, New York Must Care For Its Own." The committee, after mapping plans for an intensive campaign, accepted lists of prospects and prepared to start immediately on the work of securing a gift from every corporation, firm and employee group. The two-fold plan adopted calls for prompt coverage of all assignments and 100 per cent solicitation of all employee groups.

Announces Essentiality of Paper and Pulp

The essentiality of certain papers and paper products is announced in Activity and Occupation Bulletin No. 27, which has been issued by the National Headquarters, Selective Service System, Washington, D. C., to local boards and the U. S. Employment Service Offices. The bulletin includes 29 types of paper as essential but does not include wrapping, writing and printing papers. It is understood that similar rulings on the essentiality of pulpwood, and pulp production and their essential occupations, will be issued in separate forms.

Production of Pulp, Paper, and Materials for Packing and Shipping Products

PART I. POLICIES THAT APPLY TO THIS ACTIVITY

General policies govern this activity.

PART II. ESSENTIAL ACTIVITIES

A. *Production of the following pulp, paper, paperboard, and converted products*:

1. Pulp (made from pulpwood and other substances).

2. The following types of paper stock and paperboard: Absorbent for impregnation, Asphalt laminating, Blueprint, Box board, Cable insulation, Carbonizing, Chart and map (Government), Condenser tissue, Container board, Drafting, Filter, Gasket, Glassine, Greaseproof, Gumming, Photographic and other sensitized, Safety base stock, Sanitary, Sanitary napkin stock, Toweling stock, Toilet tissue stock, Napkin stock, Hospital wadding stock, Shipping sacks stock, Tabulating card stock, Tracing, Vegetable parchment, Waxing, Wet machine board.

3. The following converted products from paper and paperboard: Ammunition and shell cases, Carbon, Envelopes used for shipping and preserving essential products, Fiber drums, Gummed paper tape, Hospital wadding, Laminated waterproof and heavy crepe, Liquid tight containers and closures, Napkins, Paperboard boxes and shipping containers, Sanitary napkins, Shipping sacks, Toilet tissue, Towels, Waxed, waxed laminated and resin impregnated papers for food, munitions, and industrial wrapping.

B. *Production of other materials for shipping and preserving essential products*: Bagging, jute, meat; Bags, textile (except laundry bags); Barrels, metal; Baskets, Climax, fruit, vegetable; Box shooks; Boxes: Metal, wooden; Cable, fiber; Cans; Cases, packing; Containers: Glass, metal, wood; caps and closures for such Containers; Cooperage; Cooperage stock (staves, heading and hoops); Cordage; Crates; Drums (shipping); Excelsior; Gummed cloth tape; Rope; Tin cans.

PART III. ESSENTIAL OCCUPATIONS

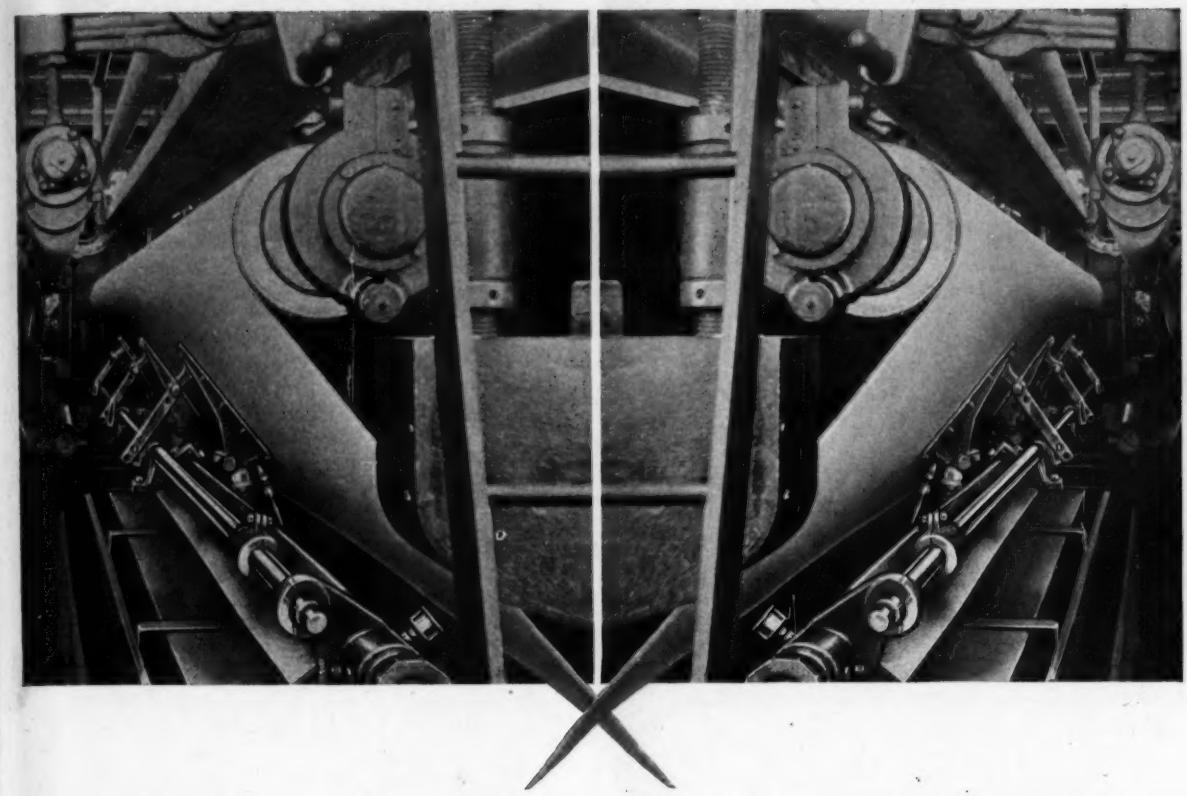
Accountant, Cost; Acid Maker; Assembler, Dies; Assembler, Tank (All Around); Back Tender; Bacteriologist; Bag-Making-Machine Operator; Blacksmith (All Around); Carpenter (All Around); Chemist; Chief Inspector; Coater Operator (This title covers operators who set up and adjust the machines they operate to apply protective coating to tin plate sheets used in tin can fabrication. It does not cover workers who operate the machines only.); Cooker, Pulp Stock; Cooper (All Around); Die Maker; Die Setter; Dishing-Machine Operator; Electrician (All Around): Engineer, Power House; Engineer, Professional and Technical; Foreman, (This title covers foremen who are actually engaged in supervisory duties in connection with the production of pulp, paper, and converted products, also materials for packing and shipping products, and who exercise independent judgment and assume extensive responsibility for product. It does not include straw bosses or laboring gang foremen.); Glass Furnaceman; Heat Treater (All Around); Inspector, (This title covers inspectors experienced in the methods of manufacture of pulp, paper, and converted products, also the production of materials for packing and shipping products, who examine the product in various states of manufacture to discover faulty material or workmanship and to determine that specifications are met.); Lithographer; Lithographic-Press Man; Lumber Grader; Machine Set-Up Man; Machinist (All Around); Manager, Employment and Personnel; Manager, Production; Manager, Traffic; Mechanic, Maintenance; Metallurgist; Millwright; Mold Maker; Paper-Making-Machine Operator; Patternmaker (All Around); Pipe Fitter; Press Operator (All Around); Purchasing Agent; Resaw Operator; Rope Splicer (Power Transmission Rope); Saw Filer, Circular, Bank, and Faller's Saw; Serviceman (Can-Closing Machines); Set-Up Man (Rope Machines); Sheet-Metal Workers (All Around); Solder Maker, (This title covers those workers whose duties cover the refining of scrap solder and the alloying of tin and lead with the refined metal to make solder of prescribed standards. It does not include those workers who are engaged in single phases of solder making, such as melting and mixing the metals, cutting bars, bundling or packing, etc.); Super-Calender Operator; Tester, Paper; Tester, Pulp; Tinsmith; Tool Maker; Turbine Engineer; Welder (All Around); Woodworking-Machine Operator (All Around).

April Newsprint Statistics

Production of newsprint in Canada during April, 1943, amounted to 229,573 tons and shipments to 243,813 tons, according to the News Print Service. Production in the United States was 68,001 tons and shipments 70,368 tons, making a total United States and Canadian newsprint production of 297,574 tons and shipments of 314,181 tons. During April, 13,134 tons of newsprint were made in Newfoundland, so that the North American production for the month amounted to 310,708 tons. Total production in April, 1942, was 386,376 tons.

The Canadian mills produced 231,802 tons less in the first four months of 1943 than in the first four months of 1942, which was a decrease of nineteen and nine-tenths per cent. The output in the United States was 50,946 tons or fifteen and seven-tenths per cent less than in the first four months of 1942, in Newfoundland production was 53,750 tons or forty-eight and nine-tenths per cent less, making a total decrease of 336,498 tons, or twenty-one and one-tenth per cent less than in the first four months of 1942.

Stocks of newprint paper at the end of April were 94,084 tons at Canadian mills and 11,079 tons at United States mills, making a combined total of 105,163 tons compared with 121,770 tons on March 31, 1943, and 196,669 tons at the end of April, 1942.



MULTIPLY BY A THOUSAND

And you'll get some idea of the job VICKERY FELT CONDITIONERS are doing for the industry right now.

A thousand press felts in mills all over this country are running continuously clean day after day and week after week. Think what this means in terms of production and economy . . . Are *your* Conditioners doing their job 100% effectively? Call on us if there's any question of adjustment, operation or maintenance.

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending May 22, 1943

STOCKS

	High	Low	Last
A. P. W.	2⅞	2⅝	2⅝
Armstrong Cork Co.	36⅛	34¾	36
Celotex Corp.	14⅜	13½	14¼
Celotex Corp., pf.	91	90	91
Certain-Teed Products Corp.	7⅛	6⅝	6⅝
Certain-Teed Products Corp., pf.	60¼	57	58½
Champion Paper & Fibre Co.	20⅛	19¼	20⅛
Champion Paper & Fibre Co., pf.	108	108	108
Congoleum Nairn Co.	23½	22¼	23½
Container Corp. of America	23¼	22¼	22¾
Continental-Diamond Fibre Co.	14⅜	13¾	14
Crown-Zellerbach Co.	14⅜	14⅛	14⅜
Crown-Zellerbach Co., pf.	93¾	92	93⅜
Dixie Cup Co.	14⅛	13¼	14⅛
Dixie Cup Co., —A.	41	40⅜	40½
Flintkote Co.	20⅝	20	20⅛
Flintkote Co., pf.	....	....	....
Robert Gair	4⅛	3⅝	3⅞
Robert Gair, pf.	14	13¾	13⅞
International Paper Co.	12¼	11⅜	11¾
International Paper Co., pf.	58	56	56
Johns-Manville Corp.	85½	83¾	85⅜
Johns-Manville Corp., pf.	131½	131½	131½
Kimberly-Clark Corp	31¾	30½	31½
Mac Andrews & Forbes	25⅞	25⅜	25¾
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	38¼	37¼	37½
Mead Corp.	9½	9¼	9½
Mead Corp., pf. A—6%	....	....	....
Mead Corp., pf. B—5½%	72½	71¾	72½
Paraffine Companies, Inc.	42⅛	41¼	42
Paraffine Companies, Inc., pf.	105	104	105
Rayonier, Inc.	13	12½	12½
Rayonier, Inc., pf.	29½	29½	29½
Ruberoid Co.	24¾	23	24¼
Scott Paper Co.	42⅜	41¼	42⅜
Scott Paper Co., pf.	111¼	111¼	111¼
Sutherland Paper Co.	30¾	30¼	30¾
Union Bag & paper Corp.	10½	9¾	10⅛
United Paperboard Co.	5⅛	4⅞	5
U. S. Gypsum Co.	71¼	70	70¾
U. S. Gypsum Co., pf.	180	180	180
West Virginia Pulp & Paper Co.	15¾	14⅞	15¼
West Virginia Pulp & Paper Co., pf.	109	107	109

BONDS

Abitibi Pulp & Paper Co. 5s '53	70	69	69
Celotex Corp. 4½s '47	102¼	102	102¼
Certain-Teed Products Corp. 5½s '48	99¾	99¼	99¾
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	107⅞	107	107
International Paper Co. 5s '47	103¼	103	103¼
Mead Corp. 3¼s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	103⅜	103⅜	103⅜

New York Curb Exchange

High, Low and Last for Week Ending May 22, 1943

STOCKS

	High	Low	Last
American Box Board Co.	8¼	8	8
Brown Co., pf.	....	....	....
Great Northern Paper Co.	31½	30	31
Hummel-Ross Fibre Corp.	4⅞	4⅜	4¾
National Container Corp.	12½	12	12
St. Regis Paper Co.	3¾	3½	3¾
St. Regis Paper Co., pf.	133	132½	133
Taggart Corp.	5⅛	4⅝	4⅞

BONDS

American Writing Paper Co. 6s '61	93	92½	92½

United Paperboard Profits Off

The United Paperboard Company and subsidiaries, for nine months to February 27, reports profit before Federal income taxes, $16,968. Net profit for nine months to Feb. 28, 1942, was $287,511, after $201,000 provision for Federal income taxes, equal to $1.03 a common share.

Great Northern Profits Off

The Great Northern Paper Company and subsidiaries for March quarter reported net profit after $136,765 provision for Federal income taxes was $206,167, or 21 cents a share, compared with $425,880, or 43 cents a share, last year.

Puget Sound Earns Less

The Puget Sound Pulp and Timber Company realized $110,547 net profit on operations in the first quarter of 1943, after tentative provision of $131,856 for Federal taxes, according to the company's interim report to stockholders, issued today. This compared with $237,522 net profit, after $622,130 for Federal taxes, in the first quarter of 1942.

Net in the 1943 first quarter equalled 29c a share of outstanding common stock, compared with 68c a share a year ago.

Manufacturing operations at the Bellingham plant were maintained at about 50% of capacity during the first quarter of 1943. According to the report, reduction from full capacity operation, as maintained throughout the first nine months of 1942, was caused primarily by log shortage which developed during the winter, aggravated by embargo on shipments of Canadian logs to the United States. Pulp output of 21,181 tons in the first quarter of 1943 compared with 42,723 tons in the like period of 1942.

Brown Co. to Pay Interest

The Brown Company will pay on June 1, 1943, all back interest together with current interest totaling $1.606,162 on its general mortgage 5% cumulative bonds, Henry P. Kendall, chairman, has announced. Checks covering interest from December 1, 1940, to June 1 will be mailed by the Old Colony Trust Company, paying agent, to registered owners as of May 31, 1943. Due to the observance of Memorial Day on the thirty-first, all transfers and exchanges by holders in the U. S. must be consummated by May 29.

Balance of Abitibi Claims Small

TORONTO, Ont., May 24, 1943—The total remaining claim of the Abitibi Power and Paper Company bondholders for principal and interest per $100 of original principal, after payments of the currently authorized $19 on principal account, will amount to $143.82 plus interest accrued since Dec. 31, 1942. This $143.82 represents the present equivalent in Canadian funds of the United States currency in which the principal and interest are payable. The total of $143.82 consists of $68 of the remaining principal and $75.82 of interest, including interest on overdue and unpaid interest.

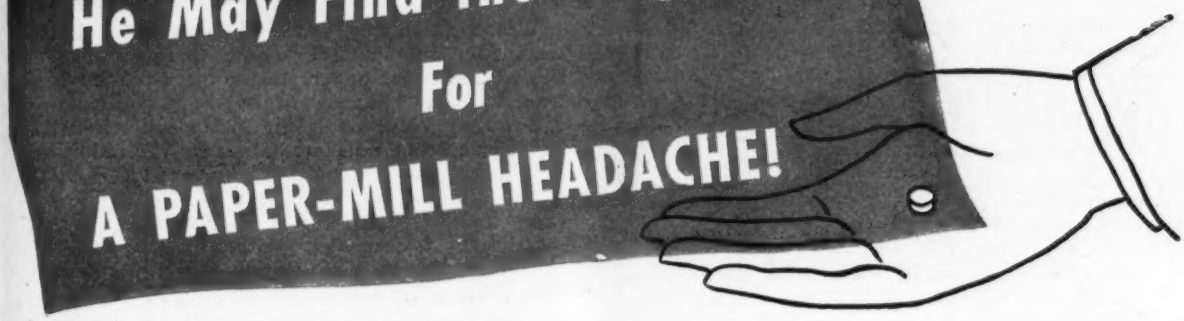
Gaylord Declares Dividend

The Gaylord Container Corporation has declared an extra dividend of 12½ cents and the regular quarterly of 12½ cents on the common stock, payable June 15 to record May 28.

Kimberly-Clark Votes Dividend

The directors of the Kimberly-Clark Corporation have voted a dividend of 25 cents payable July 1 to common stockholders of record June 10. A similar amount was distributed on April 1.

He May Find the "Aspirin" For A PAPER-MILL HEADACHE!



Paper mill men were using ARMCO Stainless Steel long before the war—in Fourdriniers, vats, flow boxes, flumes, stuff chests and other "trouble spots."

This smooth, hard metal is so easily kept clean and free from corrosion that there is little chance for slime-producing bacteria to take hold. With equipment made of ARMCO Stainless, there are fewer wash-up interruptions, less breakage, less plugging of felts and blinding of wires. Production stays on the high road.

Today, of course, every pound of stainless steel is ticketed for war. Yet ARMCO's research workers are learning many new things about war-steels that may solve your metal equipment problems when peace comes.

Someday this "paper man's metal" will come home, improved by its war experiences, to help you win your never-ending production battles. Keep a place open for it in your post-war equipment plans. The American Rolling Mill Company, 1471 Curtis St., Middletown, Ohio.

CONSTRUCTION NEWS

Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Production Board. The status of projects reported herewith under the provisions of the order is not known.—EDITOR.

Los Angeles, Cal.—Pioneer Flintkote Company, 5500 South Alameda street, manufacturer of roofing and building papers, plaster board, box board, etc., has approved plans for addition, for general operating service, including office division. No estimate of cost announced. General erection contract has been awarded to James Reed, 3124 Olive avenue, Huntington Park, and will be placed under way at once.

Cincinnati, Ohio—Cincinnati Industries, Inc., Station street and line of Big 4 Railroad, manufacturer of waterproof paper-lined bags and other containers, has plans under way for new one-story addition for expansion in production department. Application has been made for a priority rating and bids will be asked soon on general erection contract. A. M. Kinney, Inc., Enquirer Building, Cincinnati, is consulting engineer.

Holyoke, Mass.—The Eastern Corrugated Paper Products Company, Inc., 545 Main street, recently organized with capital of 360 shares of stock, no par value, plans operation of local plant for the manufacture of a line of corrugated paper goods. William J. Millane is president, and Walter J. Griffin, 583 Pleasant street, Holyoke, treasurer.

Cleveland, Ohio—The Great Lakes Paper Box Company, 7275 Wentworth avenue, manufacturer of folding paper boxes and containers, has begun construction of building, to be used for storage and distribution, with portion to be equipped as a boiler house. Erection contract recently was let to the Dunbar Company, 8201 Cedar avenue. Cleveland. This will replace one of buildings at plant, destroyed by fire several months ago, previously referred to in these columns. G. S. Rider Company, Terminal Tower Building, is architect and engineer. Company is a subsidiary of General Container Corporation, 4600 Brookpark road, Cleveland.

New York, N. Y.—The C. & M. Envelope Company, 535 Pearl street, manufacturer of envelopes and other commercial paper products, has arranged for lease of four floors in building at 28 Elk street, and will occupy for expansion in converting plant. Present works will be removed to new location and additional facilities provided.

Olympia, Wash.—Public Lands Commissioner, 5031 44th avenue South, Seattle, Wash., is reported to be in negotiations with a large manufacturer of cork board products in East (company name withheld), which plans purchase of a tract of land on tidewater in Washington, as site for a new plant for Western trade. Proposed mill will comprise several one-story units, equipped for an initial capacity of about 50,000 tons of cork board and allied products per annum. It is said that project will mature at early date.

Wisconsin Rapids, Wis.—The Consolidated Water Power and Paper Company, manufacturer of coated and other paper stocks, has awarded contract to Westinghouse Electric Supply Company, Milwaukee, Wis., for lighting fixtures for installation in new one and one-half story mill addition, now being completed, previously referred to in these columns. New structure will be used as a press building, and will be ready for equipment installation at early date.

Tonawanda, N. Y.—Spaulding Fibre Company, 310 Wheeler street, manufacturer of insulating paper and kindred products, is running on a capacity schedule, with entire output for military service. Present working force is being increased.

Riverbend, Que.—Price Brothers & Co., Ltd., Que., manufacturer of newsprint, has plans under way for one-story addition to mill at Riverbend, for expansion in machine department, including certain improvements in present mill buildings. It is said that work will be carried out soon.

Chandler, Que.—Gaspesia Sulphite Company, Ltd., Quebec., has plans maturing for alterations and improvements in sulphite pulp mill at Chandler. It is understood that bids will be asked at early date on general construction contract.

Hull, Que.—The E. B. Eddy Company, Ltd., manufacturer of bond and other writing paper stocks, tissue papers, etc., is said to have preliminary plans under way for large addition to mill, to be used primarily for printing plant.

New Companies

New York, N. Y.—The Arco Paper Corporation has been incorporated with capital of $10,000, to manufacture and deal in paper products of various kinds. New company is represented by Harry M. Bardez, 1476 Broadway, New York, attorney.

Dover, Del.—The National Council for Stream Improvement of the Pulp, Paper and Paperboard Industries, Inc., has been chartered under Delaware laws, with no capital stock, to engage in research and investigations for the industries noted. New organization is represented by the Registrar and Transfer Company, Dover.

New York, N. Y.—Artcraft Mount and Card Company, Inc., has been organized with capital of $10,000, to operate a converting plant for the manufacture of card mounts for photographs and other service, special papers, etc. New company is represented by Pollack & Horowitz, 152 West 42nd street, New York, attorneys.

Hooker Adds White Star to Its Flag

The Hooker Electrochemical Company has been awarded the White Star to be added to the Army Navy "E" Flag which they received September 8, 1942. Announcement of the second award was made by Under Secretary of War, Robert P. Patterson in a letter addressed to the men and women employees of the company. The award is made for continuous, meritorious services on the production front.

PAPER IS A WAR ESSENTIAL

War-Time Service Meeting

of Superintendents

THE AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, INC.

June 15, 16, 17, 1943

THE COMMODORE HOTEL NEW YORK

Write Hotel for Reservations

OPEN PAPER BIDS FOR U. S. PRINTING OFFICE

(Continued from page 7)

50 Per Cent Antique Book

No. 26—120,000 lbs., 25x38—80; flat, cut 38x48 ins.

Paper Corp. of U. S.	14.12c*
Whitaker Paper Co. (60,000 lbs. only)	13.25c
Old Dominion Paper Co.	12.98c

No. 27—30,000 lbs., 25x38—80; flat, cut 22¾x31½ ins.

Paper Corp. of U. S.	14.12c*
Old Dominion Paper Co.	12.98c
Aetna Paper Co.	12.90c

75 Per Cent Laid Antique Book

No. 29—15,000 lbs., 25x38—140; flat, cut 24x38 ins.; the laid marks to run the 24-inch direction of the sheet; the grain and chain marks to run lengthwise of the sheet.

Bulkley, Dunton & Co.	14.75c
R. P. Andrews Paper Co.	15.97c
Barton, Duer & Koch Paper Co.	14.75c
Whitaker Paper Co.	16.94c
Aetna Paper Co.	15.87c

Supercalendered Book

No. 33—700,000 lbs., 25x38—90; flat, cut 28½x48, 31¼x45½, 38x48, and 39x 50 ins.

No bids.

No. 34—100,000 lbs., 25x38—100; flat, cut 38x48 ins.

No bids.

No. 35—1,500,000 lbs., 25x38—90; rolls, 28½ and 38 ins. wide (3-inch fiber cores).

R. P. Andrews Paper Co.	6.58c
Graham Paper Co. (540,000 lbs. only)	7.14c
Mudge Paper Co. (400,000 lbs. only)	7.40c

No. 36—1,500,000 lbs. 25x38—100; rolls, 28½ and 38 ins. wide (3-inch fiber cores).

R. P. Andrews Paper Co.	6.21c

Machine-Coated Book

No. 37—250,000 lbs., 25x38—90; flat, cut 35x45, 38x48, and 39x50 ins.

Barton, Duer & Koch Paper Co.	6.05c

No. 38—500,000 lbs. 25x38—100 and 120; flat, cut 35x45, 38x48, and 39x50 ins.

Meade Sales Co. (100,000 lbs. only)	7.13c
Barton, Duer & Koch Paper Co.	6.05c

Coated Book

No. 41—400,000 lbs., 25x38—140 and 160; flat, cut 38x48, and 39x50 ins.; the grain to run lengthwise of the sheet.

John F. Post, Inc. (200,000 lbs. only—shipment 60 days)	9.06c
Walker Goulard Plehn Co. (200,000 lbs. only)	8.65c
(200,000 lbs. only)	9.15c
Paper Corp. of U. S.	8.25c*
Perkins-Goodwin Co.	8.38c
Stanford Paper Co.	9.00c
Whitaker Paper Co. (100,000 lbs. only)	9.20c

50 Per Cent Machine-Finish Lithograph

No. 43—40,000 lbs., 25x38—160; flat, cut 10½x16 ins., the grain to run lengthwise of the sheet.

Walker Goulard Plehn Co.	13.00c*
Paper Corp. of U. S.	12.83c*
R. P. Andrews Paper Co.	12.43c
Barton, Duer & Koch Paper Co.	16.00c
Old Dominion Paper Co.	13.27c

Ground Wood Mimeograph

No. 44—2,000,000 lbs., No. 36; flat, cut 32½x42½, and 38x48½ ins., grain as ordered.

Walker, Goulard Plehn Co. (500,000 lbs. only)	5.83c
(600,000 lbs. only)	5.89c
(400,000 lbs. only)	6.14c
R. P. Andrews Paper Co.	5.83c*
Graham Paper Co. (500,000 lbs. only)	5.83c*
Meade Sales Co. (1,000,000 lbs. only)	5.50c
Whitaker Paper Co.	5.55c
Old Dominion Paper Co.	4.798c
Bermingham & Prosser Co. (500,000 lbs. only)	5.00c
Bradner, Smith & Co. (600,000 lbs. only)	4.80c
Marquette Paper Co.	5.45c

Chemical Wood Mimeograph, White and Colored

No. 45—200,000 lbs., white, Nos. 36 and 40; flat, cut 32½x42½, and 38 x48½ ins.; the grain to run as ordered.

Whitaker Paper Co.	6.91c
Boston Paper Board Co. (1 carload only)	7.25c

No. 46—400,000 lbs., blue, buff, green, pink and yellow, Nos. 36 and 40; flat, cut 32½x42½ and 38x48½ ins.; the grain to run as ordered. Min. order, one color, 10,000 lbs.

Cauthorne Paper Co.	8.44c

25 Per Cent Mimeograph

No. 47—800,000 lbs., Nos. 36, 40 and 48; flat, cut 32½x42½, 34½x44, and 38x48½ins.; the grain to run as ordered.

Virginia Paper Co.	10.88c
Old Dominion Paper Co.	9.46c
Aetna Paper Co. (400,000 lbs. only)	9.18c

Blue U S M O Safety Writing

No. 48—300,000 lbs., No. 32; rolls, 22 ins. wide, 24 ins. in diameter (3-inch fiber cores).

D. L. Ward Co. (150,000 lbs. only)	12.11c
R. P. Andrews Paper Co.	11.93c

U S M O Writing, White and Blue

No. 49—4,000 lbs., No. 32; rolls, 8½ inches wide, 24 ins. in diameter (3-inch fiber cores). Min. order either color, 2,000 lbs.

R. P. Andrews Paper Co. (white—minimum 5000 lbs.)	11.50c
(blue—minimum 5000 lbs.)	12.00c

Ground Wood Writing, White and Colored

No. 50—2,000,000 lbs. white, No. 32; flat, cut any size, min. width 32 ins., max. width 48 ins.

Bulkley, Dunton & Co. (2,235,000 lbs. maximum)	5.75c
(200,000 lbs. only)	5.90c
	6.00c
Walker, Goulard Plehn Co. (500,000 lbs. only)	6.58c
Wilcox Walter Furlong Paper Co. (400,000 lbs. only)	5.89c
(400,000 lbs. only)	6.14c
(200,000 lbs. only)	6.24c
R. P. Andrews Paper Co. (500,000 lbs. only)*	6.58c
Stanford Paper Co. (600,000 lbs. only)	5.90c
Resolute Paper Products Corp.	6.23c
Old Dominion Paper Co.	5.75c
	5.90c
Lamy Paper Co. (500,000 lbs. only)	6.58c
Bermingham & Prosser Co. (667,000 lbs. only equal monthly shipments)	5.75c
Mudge Paper Co. (total tonnage 500,000 lbs. lots 50, 51, 52)	6.23c
Bradnor Smith & Co. (total tonnage 600,000 lbs. lots 50, 51, 52)	5.55c
Great Northern Paper Co. (total tonnage 600,000 lbs. lots 50, 51, 52)	5.25c
Frank Parsons Paper Co. (800,000 lbs. only)	5.75c
(800,000 lbs. only)	5.90c

No. 51—3,000,000 lbs. white, No. 36; flat, cut any size, min, width 32 ins., max. width 48 ins.

D. L. Ward Co. (800,000 lbs. only)	5.89c
(600,000 lbs. only)	6.14c
(200,000 lbs. only)	6.24c
(600,000 lbs. only)	6.85c
Bulkley, Dunton & Co. (2,235,000 lbs. maximum)	5.75c
(200,000 lbs. only)	5.90c
	6.00c
Stanford Paper Co. (600,000 lbs. only)	5.90c
Resolute Paper Products Corp.	6.23c
Old Dominion Paper Co.	5.75c
	5.90c
Bermingham & Prosser (1,000,000 lbs. only)	5.75c
Mudge Paper Co.	6.23c
Bradner, Smith & Co.	5.55c
Great Northern Paper Co.	5.25c
Marquette Paper Co. (1,800,000 lbs. only)	5.90c

No. 52—2,000,000 lbs. white, No. 40; flat, cut any size, min. width 32 ins., max. width 48 ins.

Bulkley, Dunton & Co. (200,000 lbs. only)	5.75c
	5.90c
	6.00c
R. P. Andrews Paper Co. (200,000 lbs. only)	6.09c
Resolute Paper Products Corp.	6.23c
Old Dominion Paper Co.	5.75c
	5.90c
Bermingham & Prosser Co.	5.75c
Mudge Paper Co.	6.23c
Bradner & Smith Co.	5.55c
Great Northern Paper Co.	5.25c
Central Ohio Paper Co. (200,000 lbs. only)	6.09c
Frank Parsons Paper Co. (1,000,000 lbs. only)	5.75c
(1,000,000 lbs. only)	5.90c

No. 53—200,000 lbs. yellow, No. 36; flat, cut any size, min. width 32 ins., max. width 48 ins.

Resolute Paper Products Corp.	6.73c
Old Dominion Paper Co.	6.00c
	6.15c
	6.388c
Bermingham & Prosser Co.	6.00c
Bradner, Smith & Co.	5.80c
Frank Parsons Paper Co.	6.00c
	6.15c

Chemical Wood Writing, White and Colored

No. 55—2,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

D. L. Ward Co. (250,000 lbs. only)	7.27c

Stanford Paper Co. .....
(500,000 lbs. only) 7.50c
Resolute Paper Products Corp... 6.98c
Barton, Duer & Koch Paper Co. (total tonnage 1,000,000 lbs. lots 55, thru 58) 7.22c
Whitaker Paper Co. (total tonnage 2,000,000 lbs. lots 55 thru 58) 6.85c
Mudge Paper Co. (total tonnage 500,000 lbs. 55 thru 58) 6.98c
Marquette Paper Co. 7.48c
R. P. Andrews Paper Co. 6.87c

No. 56—5,000,000 lbs., white No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Bulkley, Dunton & Co. .....
(600,000 lbs. only) 7.26c
R. P. Andrews Co. 6.74c
Resolute Paper Products Corp. .. 6.98c
Cauthorne Paper Co. .....
(500,000 lbs. only) 7.50c
Barton, Duer & Koch Paper Co. 7.22c
Whitaker Paper Co. .....
(50,000 lbs. only) 6.80c
Mudge Paper Co. 6.98c
Marquette Paper Co. 7.48c

No. 57—2,000,000 lbs., white, No. 32; rolls, min. width 16 ins., max. width 48 ins. (3-inch fiber cores).

D. L. Ward Co. .....
(250,000 lbs. only) 6.77c
Bulkley, Dunton & Co. .....
(130,000 lbs. only)* 7.00c
Paper Corp. of U. S. 7.00c
(100,000 lbs. only)* 7.00c
Wilcox Walter Furlong Paper Co.
(130,000 lbs. only)* 7.00c
R. P. Andrews Paper Co. 6.37c
Perkins, Goodwin Co. .....
(500,000 lbs. only) 6.97c
Resolute Paper Products Corp. .. 6.73c
Barton, Duer & Koch Paper Co. 6.97c
Whitaker Paper Co. 6.35c
Bermingham & Prosser Co. 7.00c*
Mudge Paper Co. 6.73c
7.00
Bradner, Smith & Co. .....
(400,000 lbs. only) 7.10c
Marquette Paper Co. .....
(1,000,000 lbs. only) 7.03c
7.24c
Butler Co. ...(200,000 lbs. only) 6.36c

No. 58—2,000,000 lbs., white, No. 40; rolls, min. width 16 ins., max. width 48 ins. (3-inch fiber cores).

R. P. Andrews Paper Co. 6.24c
Perkins-Goodwin Paper Co. ....
(500,000 lbs. only) 6.97c
Resolute Paper Products Corp. .. 6.73c
Meade Sales Co. .....
(200,000 lbs. only) 7.03c
Barton, Duer & Koch Paper Co. 6.97c
Whitaker Paper Co. 6.30c
Mudge Paper Co. 6.73c
Central Ohio Paper Co. .....
(200,000 lbs. only) 6.495c
Marquette Paper Co. 7.24c
Frank Parsons Paper Co. .....
(500,000 lbs. only) 7.03c

No. 59—3,000,000 lbs., blue, buff, green, pink, salmon and yellow Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 48 ins. Min. order, one color, 10,000 lbs.

D. L. Ward Co. 7.85c
Resolute Paper Products Co. ....
(500,000 lbs. only) 7.73c
Mudge Paper Co. .....
(500,000 lbs. only) 7.73c
Marquette Paper Co 8.23c

No. 60—200,000 lbs., blue, buff, green, pink, salmon and yellow, Nos. 32 and 40; rolls, 32 and 38 ins. (3-inch fiber cores).

D. L. Ward Paper Co. 7.27c
Meade Sales Co. .....
(100,000 lbs. only) 7.76c

Lithograph-Finish Map

No. 64—20,000 lbs. Nos. 32 and 40 flat, cut any size. Min. width 22 ins. Maximum width 48 ins.

No bids.

50 Per Cent Lithograph-Finish Map

No. 65—600,000 lbs., Nos. 32, 40, 48 and 56; flat, cut any size, min. width 22 ins., max. width, 48 ins, the grain to run lengthwise of the sheet.

Paper Corp. of U. S. 15.25c*
Stanford Paper Co. .....
(150,000 lbs. only) 15.40c
(150,000 lbs. only) 15.00c
(150,000 lbs. only) 14.75c
(150,000 lbs. only) 14.50c
Graham Paper Co. .....
(100,000 lbs. only) 14.54c
(100,000 lbs. only) 14.94c
Virginia Paper Co. .....
(50,000 lbs. only) 13.80c
Central Ohio Paper Co. .....
(50,000 lbs. only)* 15.84c

75 Per Cent Lithograph-Finish Map

No. 66—150,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 24 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; ream markers to be omitted.

R. P. Andrews Paper Co. .....
(50,000 lbs. only)* 17.35c
(100,000 lbs. only) 18.35c
Barton, Duer & Koch Paper Co. 16.25c
Mudge Paper Co. 16.50c
17.00c

No. 67—40,000 lbs., Nos. 48 and 56; flat, cut any size, min. width 30 ins., max. width 48 ins.; the grain to run lengthwise of the sheet; ream markers to be omitted. Min. order, one substance, 5,000 lbs.

Mudge Paper Co. 16.25c
16.00c

50 Per Cent White Chart Lithograph-Finish

No. 68—4,000,000 lbs. No. 80; flat, cut any size, min. width 22 ins. max. width 46 ins.; packed in cases of 1,000 sheets each; the grain to run lengthwise of the sheet unless otherwise specified.

Bulkley, Dunton & Co. .....
(50,000 lbs. only) 17.00c
Franklin Research Co. 18.50c
R. P. Andrews Paper Co. .....
(100,000 lbs. only) 21.50c
Barton, Duer & Koch Paper Co.
(300,000 lbs. only) 16.95c
(75,000 lbs. only) 17.00c

100 Per Cent White Chart, Lithograph-Finish

No. 69—30,000 lbs., Nos. 83 and 96; flat, cut any size, min. width 22 ins., max. width 46 ins.; packed in cases of 1,000 sheets each; the grain to run lengthwise of the sheet unless otherwise specified.

Paper Corp. of U. S. 22.65c*
Barton, Duer & Koch Paper Co. 20.90c
Mudge Paper Co. 25.42c

Chemical Wood Manifold, White and Colored

No. 71—1,000,000 lbs., white, No. 18; flat, cut 21x32, and 32x42 ins.; the grain to run 21-inch and 42-inch ways.

D. L. Ward Co. .....
(200,000 lbs. only) 9.90c
Bulkley, Dunton Co. .....
(500,000 lbs. only) 9.50c
Walker Goulard Plehn Co. ....
(100,000 lbs. only) 9.79c
Paper Corp. of U. S. .....
(100,000 lbs. only) 9.79c
Cauthorne Paper Co. .....
(400,000 lbs. only) 9.55c
Graham Paper Co. .....
(150,000 lbs. only) 8.44c
(100,000 lbs. only) 9.73c
Baldwin Paper Co. .....
(500,000 lbs. only) 8.75c
Swigert Paper Co. .....
(100,000 lbs. only) 9.79c
Bradner, Smith & Co. .....
(400,000 lbs. only) 8.50c
Marquette Paper Co. .....
(500,000 lbs. only) 8.99c
9.49c
(50,000 lbs. only) 9.49c
Butler Co. ....(100,000 lbs. only) 9.79c

No. 72—200,000 lbs. white, No. 18 rolls, 24 ins. wide. (3-inch fiber cores).

D. L. Ward Co. 9.40c
Bulkley, Dunton Co. 8.90c
Walker Goulard Plehn Co. 7.98c*
Paper Corp. of U. S. 9.29c
Cauthorne Paper Co. 8.75c
Baldwin Paper Co. 8.25c
Import Paper Co. less 2% 30 days 8.25c
Frank Parsons Paper Co. 8.24c

No. 73—300,000 lbs., blue, green, pink, and yellow, No. 18; flat, cut 21x32, 22x34, 28x34 and 32x42 ins.; the grain to run the 21-inch and 42-inch ways. Min. order, on color 5,000 lbs.

Bulkley, Dunton & Co. 10.00c
Paper Corp. of U. S. 9.00c
Baldwin Paper Co. .....
(150,000 lbs. only) 9.25c
Old Dominion Paper Co. 8.488c
Marquette Paper Co. 9.99c

50 Per Cent Manifold, White and Colored

No. 75—80,000 lbs., white, No. 14; flat, cut 38x48 ins. Min. order, 5,000 lbs.

Alling & Cory Co. .....
(20,000 lbs. Aug. delivery) 22.75c
(30,000 lbs. Sept. delivery 23.25c
(30,000 lbs. Oct. delivery) 24.00c
Marquette Paper Co. 21.00c

No. 76—300,000 lbs., white, No. 18; flat, cut 21x32, 22x34, 28x34, and 32x42 ins.; the grain to run the 21-inch and 42-inch ways.

Garrett, Buchanan Co. .....
(100,000 lbs. only) 25.12c
Baxter Paper Co. .....
(50,000 lbs. only) 18.50c
(50,000 lbs. only) 19.50c
Stanford Paper Co. .....
(40,000 lbs. only) 18.30c
(40,000 lbs. only) 17.70c
Graham Paper Co. .....
(40,000 lbs. only) 19.55c
Barton, Duer & Koch Paper Co.
(100,000 lbs. only) 25.00c
19.85c
Old Dominion Paper Co. .....
(50,000 lbs. only) 17.987c
Central Ohio Paper Co. .....
(100,000 lbs. only) 25.00c
Butler Co. .....(50,000 lbs. only) 18.49c
(50,000 lbs. only) 18.99c
(50,000 lbs. only) 19.29c

No. 77—400,000 lbs., white, No. 18; rolls, 24 ins. wide. (3-inch fiber cores).

Chicago Paper Co. .....
(60,000 lbs. only) 18.30c
Paper Corp. of U. S. .....
(200,000 lbs. only)* 18.47c
Bermingham & Prosser Co. ....
(100,000 lbs. only) 18.05c
(100,000 lbs. only) 18.45c
(200,000 lbs. only) 18.75c

No. 78—200,000 lbs., blue, cherry, green, pink, salmon and yellow, No. 18; flat, cut 21x32, 22x34, and 28x34 ins.; the grain to run the 21-inch way on the 21x32-inch size. Min. order, one color, 5,000 lbs.

Barton, Duer & Koch Paper Co.
(40,000 lbs. only) 21.35c
Old Dominion Paper Co. .....
(50,000 lbs. only) 18.746c
(50,000 lbs. only) 19.246c
Bermingham & Prosser Co. ....
(500,000 lbs. only) 19.60c
(500,000 lbs. only) 19.90c
(100,000 lbs. only) 20.30c

100 Per Cent White Manifold

No. 84—60,000 lbs., No. 18; flat, cut 32x42 ins.; the grain to run the 42-inch way. Min. order 5,000 lbs.

Chicago Paper Co. 28.50c*
Bulkley, Dunton & Co. 27.45c
26.95c
27.95c
Paper Corp. of U. S. 27.44c*
R. P. Andrews Paper Co. .....
(shipment 60 days) 29.95c
Barton, Duer & Koch Paper Co. 26.30c

50 Per Cent White Glazed Manifold

No. 85—200,000 lbs., No. 16; flat,

cut 28x34 ins.; the grain to run the 28-inch way. Min. order 20,000 lbs.

R. P. Andrews Paper Co. .....
(40,000 lbs. only) 24.20c
Barton, Duer & Koch Paper Co. 19.80c

Chemical Wood Bond, White and Colored

No. 101—400,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins.; max. width 38 ins.

D. L. Ward Co. .....
(200,000 lbs. only) 8.27c
Bulkley, Dunton & Co. .....
(150,000 lbs. only) 8.90c
Walker Goulard Plehn Co. 8.15c*
Eastern Corp. .....
(200,000 lbs. only) 10.62c
Graham Paper Co. 8.12c
Barton, Duer & Koch Co. .....
(100,000 lbs. only) 8.20c

No. 102—1,500,000 lbs., No. 40; flat, cut any size, min. width 21 ins.; max. width 37 ins.

Eastern Corp. .....
(200,000 lbs. only) 8.63c
Bermingham & Prosser Co. ....
(200,000 lbs. only) 8.90c

No. 103—150,000 lbs., blue, buff, green, pink, salmon, and yellow, No. 26; flat, cut any size, min. width 21 ins., max. width 38 ins. Min. order, one color, 5,000 lbs.

Eastern Corp. (shipment 60 days) 11.54c

25 Per Cent Bond, White and Colored

No. 105—300,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins.; max. width 48 ins.

Stanford Paper Co. 15.06c
Whitaker Paper Co. 14.95c
Aetna Paper Co. .....
(100,000 lbs. only) 14.94c

No. 106—2,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Quaker City Paper Co. .....
(100,000 lbs. only) 13.35c
Whitehead & Alliger Co. .....
(100,000 lbs. only) 13.35c
Bulkley, Dunton & Co. .....
(100,000 lbs. only) 13.35c
Cauthorne Paper Co. .....
(200,000 lbs only) 13.35c
Barton, Duer & Koch Paper Co.
(180,000 lbs. only) 13.28c
Whitaker Paper Co. .....
(500,000 lbs. only) 13.33c
E. E. Lyold Paper Co. .....
(100,000 lbs. only) 13.35c
Aetna Paper Co. .....
(700,000 lbs. only) 12.94c
(100,000 lbs. only) 12.68c
(100,000 lbs. only) 12.73c
(200,000 lbs. only) 12.98c

No. 107—2,500,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Ris Paper Co. .....
(100,000 lbs. only) 12.90c
Collins Mfg. Co. .....
(100,000 lbs. only) 10.70c
(100,000 lbs. only) 11.06c
(50,000 lbs. only) 11.48c
(50,000 lbs. only) 11.95c
Forest Paper Co., Inc. .....
(100,000 lbs. only) 12.90c
Baldwin Paper Co. .....
(50,000 lbs. only) 13.90c
Barton, Duer & Koch Paper Co.
(80,000 lbs. only) 12.90c
Whitaker Paper Co. .....
(100,000 lbs. only) 12.90c
Central Ohio Paper Co. .....
(50,000 lbs. only) 13.87c
Aetna Paper Co. .....
(500,000 lbs. only) 12.44c

No. 108—2,500,000 lbs., white, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Whitehead & Alliger Co. .....
(50,000 lbs. only) 12.90c
Collins Mfg. Co. .....
(100,000 lbs. only) 11.06c
(100,000 lbs. only) 10.70c
(50,000 lbs. only) 11.48c
(50,000 lbs. only) 11.95c
Wilcox Walter Furlong Paper Co.
(100,000 lbs. only) 12.90c
Forest Paper Co., Inc. .....
(50,000 lbs. only) 12.90c
Aetna Paper Co. .....
(500,000 lbs. only) 12.44c

No. 109—100,000 lbs., yellow, No. 26; flat, cut 34x44 ins. Min. order 5,000 lbs.

Stanford Paper Co. 15.66c
Aetna Paper Co. 15.49c

No. 110—800,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Aetna Paper Co. .....
(400,000 lbs. only) 13.14c
Butler Co. .....
(100,000 lbs. only) 13.48c
(100,000 lbs. only) 13.98c
(100,000 lbs. only) 14.58c

No. 111—900,000 lbs., blue buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Collins Mfg. Co. .....
(100,000 lbs. only) 11.19c
(100,000 lbs. only) 11.56c
(100,000 lbs. only) 11.99c
(100,000 lbs. only) 12.45c
Aetna Paper Co. .....
(500,000 lbs. only) 12.64c

50 Per Cent Bond, White and Colored

No. 120—10,000 lbs., white, No. 26; flat, cut any size, min. width 21 ins., max. width 34 ins.

R. P. Andrews Paper Co. 17.00c
Graham Paper Co. 17.20c
Aetna Paper Co. 16.99c

No. 121—20,000 lbs., white, Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 35 ins.

Graham Paper Co. 14.20c
Aetna Paper Co. 14.38c

No. 122—10,000 lbs., white, No. 32; rolls, 24 and 32 ins. wide. (3-inch fiber cores.)

Graham Paper Co. 14.00c
Aetna Paper Co. 14.16c

No. 123—5,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 34 ins. Min. order, one color, one substance, 2,500 lbs.

Collins Mfg. Co. 15.50c
Graham Paper Co. 15.20c
Aetna Paper Co. 15.13c

75 Per Cent White Bond

No. 125—2,000 lbs., No. 26; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, 2,000 lbs.

Graham Paper Co. 21.95c

No. 126—2,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

Graham Paper Co. 19.50c

100 Per Cent White Bond

No. 128—10,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, one substance, 2,000 lbs.

Lathrop Paper Co. 23.60c
Walker Goulard Plehn Co. 25.93c*
Paper Corp of U. S. 23.50c*
R. P. Andrews Paper Co. 26.04c
Barton, Duer & Koch Paper Co. 22.00c

No. 129—5,000 lbs., No. 48; flat, cut any size, min. width 16 ins., max. width 32 ins. Min. order, 2,000 lbs.

Lathrop Paper Co. 24.30c
Walker Goulard Plehn Co. 24.93c*
Paper Corp. of U. S. 23.50c*
R. P. Andrews Paper Co. 27.16c
Whitaker Paper Co. 22.00c

100 Per Cent Declaration Band

No. 140—3,000 lbs., Nos. 32 and 40; flat, cut 25½x33 ins. Min. order, one substance, 3,000 lbs.

Stanford Paper Co. 26.90c
Old Dominion Paper Co. 21.98c

100 Per Cent Parchment Deed

No. 141—2,000 lbs., No. 64; flat, cut 33x34 ins. Min. order, 2,000 lbs.

Walker Goulard Plehn Co. 25.92c*
R. P. Andrews Paper Co. 27.16c

Chemical Wood White Ledger

No. 151—1,000,000 lbs., No. 48, flat, cut any size, min. width 17 ins., max. width 48 ins.

D. L. Ward Co. .....
(200,000 lbs. only) 8.24c
Walker Goulard Plehn Co. 8.50c*
Eastern Corp. 7.99c*
Marquette Paper Co. 7.97c

No. 152—200,000 lbs., No. 64; flat, cut any size, min. width 17 ins., max. width 48 ins.

Walker Goulard Plehn Co. 8.50c*
Eastern Corp. 7.99c
Marquette Paper Co. 7.97c

No. 153—200,000 lbs., No. 48; rolls, 34 and 48 ins. wide (3-inch fiber cores).

D. L. Ward Co. 7.85c
Walker Goulard Plehn Co. 8.25c*
Wilcox Walter Furlong Paper Co. 7.40c
Eastern Corp. 7.74c
Marqeutte Paper Co. 7.52c

25 Per Cent Ledger, White and Colored

No. 154—500,000 lbs., white, Nos. 48 and 56; flat, cut 22x34, 24x38, 28x34, 32x42 and 34x44 ins. Min. order, one substance, 5,000 lbs.

Collins Mfg. Co. .....
(200,000 lbs. only) 10.95c
(100,000 lbs. only) 11.31c
(100,000 lbs. only) 11.74c
Walker Goulard Plehn Co. 13.92c*
Carpenter Paper Co. .....
(50,000 lbs. only) 13.48c
Mudge Paper Co. .....
(120,000 lbs. only) 13.50c
Bradner, Smith & Co. .....
(50,000 lbs. only) 13.49c
Central Ohio Paper Co. .....
(50,000 lbs. only) 13.87c*
Aetna Paper Co. .....
(250,000 lbs. only) 12.46c

No. 155—60,000 lbs., white, No. 64; flat, cut 24x38, 28x34, 32x42 and 34x44 ins. Min. order, 5,000 lbs.

Walker, Goulard Plehn Co. 13.47c*
Mudge Paper Co. 13.50c
Aetna Paper Co. 12.46c

No. 156—500,000 lbs., blue, buff, green, pink, salmon and yellow, No. 64; flat, cut 24x38, 28x34, and 34x44 ins. Min. order, one substance, one color, 3,000 lbs.

Collins Mfg. Co. .....
(100,000 lbs. only) 11.45c
(200,000 lbs. only) 11.81c
(100,000 lbs. only) 12.24c
Walker, Goulard Plehn Co. 14.93c*
Mudge Paper Co. 14.00c
Aetna Paper Co. .....
(250,000 lbs. only) 13.18c

50 Per Cent Ledger, White and Colored

No. 160—10,000 lbs., white, Nos. 48 and 56; flat, cut 18½x36, 18½x40¼, 24x38, 28x29, 28x34, 29x41, and 32x42 ins. Min. order, one substance, 10,000 lbs.

Ris Paper Co. 14.65c
Collins Mfg. Co. 16.50c
Walker, Goulard Plehn Co. 15.89c*
Barton, Duer & Koch Paper Co. 14.50c
Mudge Paper Co. 15.50c
Aetna Paper Co. 14.97c

No. 161—10,000 lbs., white, No. 64; flat, cut 23x36 and 32x42 ins. Min. order, 10,000 lbs.

Ris Paper Co. 14.90c
Collins Mfg. Co. 16.50c

Walker, Goulard Plehn Co. 15.89c*
Barton, Duer & Koch Paper Co. 14.50c
Mudge Paper Co. 15.50c
Aetna Paper Co. 14.97c

No. 162—10,000 lbs., blue, buff, cherry, green, pink, salmon and yellow Nos. 56 and 64; flat, cut 18½x36, 18½x40¼, 19x24, 23x36, 28x34 and 32x42 ins. Min. order, one substance, one color, 5,000 lbs.

Ris Paper Co. 15.85c*
Collins Mfg. Co. 17.00c
Walker, Goulard Plehn Co. 17.59c*
Aetna Paper Co. 15.23c

75 Per Cent Ledger, White and Colored

No. 168—4,000 lbs., white, Nos. 48 and 56; flat, cut 21x32, 24x38, 28x29, and 28x34 ins. Min. order, one substance, 4,000 lbs.

Walker, Goulard Plehn Co. 20.23c*
Paper Corp of US 19.25c
Graham Paper Co. 19.75c
Barton, Duer & Koch Paper Co. 18.50c

No. 169—5,000 lbs., white, No. 64; flat, cut 21x32, 23x36, 24x38, and 28x34 ins. Min. order, 5,000 lbs.

Walker, Goulard Plehn Co. 23.23c*
Paper Corp. of US 19.25c
Graham Paper Co. 20.25c
Barton, Duer & Koch Paper Co. 18.50c

No. 170—3,000 lbs., blue, buff, cherry, green, pink, salmon and yellow. No. 64; flat, cut 24x38, 28x34, and 34x44 ins. Min. order, one substance, one color, 3,000 lbs.

Walker, Goulard Plehn Co. 21.23c*
Paper Corp. of US 19.25c

100 Per Cent White Ledger

No. 176—20,000 lbs., No. 48; flat, cut 24x38, 28x34, and 32x42 ins. Min. order, 4,000 lbs.

Walker, Goulard Plehn Co. 24.93c*
Paper Corp. of US 20.96c*
R. P. Andrews Paper Co. 25.42c
Stanford Paper Co. 26.90c
Barton, Duer & Koch Paper Co. 20.80c

No. 177—80,000 lbs., No. 64; flat, cut 24x38, 28x34, and 32x42 ins. Min. order, 5,000 lbs.

Walker, Goulard Plehn Co. 24.42c*
Paper Cop. of US 20.96c*
R. P. Andrews Paper Co. .....
(40,000 lbs. per month) 25.42c
Barton, Duer & Koch Paper Co. 20.80c

Chemical Wood White Index

No. 183—250,000 lbs., 22½x28½—148; flat, cut any size, min. width 17 ins., max. width 42 ins.

Wilcox Walter Furlong Paper Co. 7.58c

No. 184—1,000,000 lbs., 22½x28½—182 and 280; flat, cut 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Wilcox Walter Furlong Paper Co.
(500,000 lbs. only) 7.58c
Whitaker Paper Co. .....
(200,000 lbs. only) 7.67c

50 Per Cent Index, White and Colored

No. 189—200,000 lbs., white, 22½x28½—148; flat cut 24x38, 28x34, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Walker, Goulard Plehn Co. 15.00c*
13.50c*
R. P. Andrews Paper Co. 12.43c
Barton, Duer & Koch Paper Co. 12.17c
Whitaker Paper Co. 11.89c
Mudge Paper Co. (total tonnage 100,000 lbs. lots 189-190).... 14.63c

No. 190—1,000,000 lbs., white, 22½x28½—182 and 280; flat, cut 24x38, 28x34, 32½x42, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one weight, 10,000 lbs.

Walker, Goulard Plehn Co. 13.50c*
14.50c*
Barton, Duer & Koch Paper Co.
(500,000 lbs. only) 11.70c
(500,000 lbs. only) 12.17c
Bermingham & Prosser Co. ....
(100,000 lbs. only) 14.63c
Mudge Paper Co. 14.63c

No. 191—700,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, 22½x28½—182 and 280; flat, cut 24x38, 28x34, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Walker, Goulard Plehn Co. 14.50c*
15.50c*
Barton, Duer & Koch Paper Co. 12.46c

No. 192—300,000 lbs., blue, buff, cherry, fawn, green, pink, salmon and yellow, 22½x28½—148; flat, cut 24x38, 28x34, and 34½x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Walker, Goulard Plehn Co. 16.00c*
14.50c*
R. P. Andrews Paper Co. 12.93c
Barton, Duer & Koch Paper Co. 12.46c
Whitaker Paper Co. 12.98c
Aetna Paper Co. 12.63c

100 Per Cent White Index

No. 195—20,000 lbs., 22½x28½—148; flat, cut 24x38, 28x34, and 32x42 ins.

Walker, Goulard Plehn Co. 23.37c*
Paper Corp. of US 21.35c*
R. P. Andrews Paper Co. 25.34c
Barton, Duer & Koch Paper Co. 20.80c

No. 196—100,000 lbs., 22½x28½—approximately 206; flat, cut 20½x30½ and 34½x44 ins.

Walker, Goulard Plehn Co. 23.37c*
Paper Corp. of US 21.35c*
R. P. Andrews Paper Co. 25.34c
Barton, Duer & Koch Paper Co. 19.80c

Coated Cover, White and Colored

No. 201—30,000 lbs., white, 20x26—130; flat, 26½x41 ins., the grain to run lengthwise of the sheet. Min. order, 5,000 lbs.

Whitehead & Alliger Co. .....
(shipment 60 days) 9.06c
Bulkley, Dunton & Co. 9.15c

No. 202—40,000 lbs., India tint and light green, 20x26—100; flat, 26½x41 ins. Min. order, 5,000 lbs.

Whitehead & Alliger Co. .....
(shipment 60 days) 9.46c
Bulkley, Dunton & Co. 9.55c

Antique-Finish Cover, White and Colored

No. 203—350,000 lbs., antique; white, blue, buff, dawn, quaker drab, terra cotta, gray, brown, green, gobelin blue, granite, tea, and yellow; flat, 19½x25¼—95, with projecting colored-paper marker between each 500 sheets. Min. order, one color, 5,000 lbs.

R. P. Andrews Paper Co. 8.48c
Stanford Paper Co. .....
(50,000 lbs. only) 9.00c
(150,000 lbs. only) 9.30c
Barton, Duer & Koch Paper Co. 9.21c
Marquette Paper Co. 8.44c

50 Per Cent Laid Cover, Colored

No. 205—70,000 lbs., blue, cream, white, gray and green, 20x26—130; flat, cut 19½x25¼ ins., in wrapped bundles with projecting colored-paper marker between each 500 sheets. Min. order, one color, 2,000 lbs.

R. P. Andrews Paper Co. 12.19c
Whitaker Paper Co. 13.00c

Wood Manila

No. 208—200,000 lbs., 24x36—80 and 100; flat, cut 25x38 and 32x42 ins., with projecting colored-paper marker between each 500 sheets.

National Pulp & Paper Co. 4.80c
D. L. Ward Co. 5.34c
Whitaker Paper Co. 5.35c
Old Dominion Paper Co. 5.289c
Bermingham & Prosser Co. 5.40c
Frank Parsons Paper Co. 5.20c

No. 209—300,000 lbs., 24x36—80 and 100; rolls, 21 and 36 ins. wide (3-inch fiber cores).

D. L. Ward Co. 4.84c
Bulkley, Dunton & Co. 4.50c
Paper Corp. of US 4.96c
Whitaker Paper Co. 4.875c
Old Dominion Paper Co. 4.797c
Bermingham & Prosser Co. 5.00c
Frank Parsons Paper Co. 4.70c

No. 210—80,000 lbs., 24x36—120; rolls, 18-ins. diameter, 4¾, 5¾, and 7½ ins. wide, wound on wooden plugs, 1½-in. hole.

Whitaker Paper Co. 5.25c
5.50c

Chemical Wood Manila

No. 211—50,000 lbs., 24x36—140 and 160; flat, cut any size. Min. order, one weight, 5,000 lbs.

Paper Corp. of US 7.69c
R. P. Andrews Paper Co. 7.25c

Hemp and/or Jute Manila

No. 213—100,000 lbs., 24x36—160 and 280; rolls, 48 ins. wide (3-inch fiber cores). Min. order, 5,000 lbs.

R. P. Andrews Paper Co. 18.25c
17.25c

Drumhead Manila

No. 215—60,000 lbs., 24x36—280; flat, cut 32x42 ins. Min. order, 5,000 lbs.

Mudge Paper Co. 18.00c

No. 2 Kraft

No. 217—250,000 lbs., 24x36—80 to 160; flat, cut any size in wrapped bundles.

R. P. Andrews Paper Co. 4.85c

No. 218—250,000 lbs., 24x36—80 to 160; cut any size, folded (25 sheets per fold), in wrapped bundles.

R. P. Andrews Paper Co. 4.85c

No. 219—200,000 lbs., 24x36—80 to 160, rolls, minimum width 9 ins., maximum width 48 ins., wound on wooden plugs, 1½-inch hole, or on 3-inch fiber cores as may be specified.

R. P. Andrews Paper Co. 4.60c

White Gummed

No. 252—1,000,000 sheets, flat, 22x34 ins. Min. order, 25,000 sheets.

Bulkley, Dunton & Co. .....
(per M sheets) 15.84c
Paper Corp. of US 13.09c*
R. P. Andrews Paper Co. 13.28c
Stanford Paper Co. 15.52c
14.35c
Carpenter Paper Co. 14.36c
15.53c
Graham Paper Co. 13.19c
Baldwin Paper Co. 13.27c
Barton, Duer & Koch Paper Co. 15.51c
14.36c

Whitaker Paper Co.	15.34c
	14.18c
Virginia Paper Co.	13.14c
Old Dominion Paper Co.	13.079c
Swigert Paper Co.	13.28c
Butler Co.	13.28c

25 Per Cent Blotting, White and Colored

No. 254—20,000 lbs., white, flat, 19x24—160, in wrapped bundles. Min. order, 10,000 lbs.

Geo. W. Millar & Co.	8.62c
Bulkley, Dunton Co.	8.62c
R. P. Andrews Paper Co.	8.49c
Mathers-Lamm Paper Co.	9.24c
Stanford Paper Co.	8.87c
Cauthorne Paper Co.	9.123c
Carpenter Paper Co.	8.62c
Graham Paper Co.	8.85c
Millcraft Paper Co.	9.25c
Toby Fine Papers, Inc.	8.62c
Barton, Duer & Koch Paper Co.	8.62c
Virginia Paper Co.	9.15c
Old Dominion Paper Co.	9.239c
Mudge Paper Co.	9.25c
Bradner, Smith & Co.	8.73c
Central Ohio Paper Co.	8.87c
Butler Co.	8.87c

No. 255—100,000 lbs., buff, salmon an moss green; flat, 19x24—160, in wrapped bundles. Min. order, one color, 2,000 lbs.

Geo. W. Millar & Co.	8.72c
Bulkley, Dunton & Co.	8.72c
R. P. Andrews Paper Co.	9.33c
Mathers-Lamm Paper Co.	9.11c
Stanford Paper Co.	9.14c
	8.99c
	9.56c
Cauthorne Paper Co.	9.123c
Carpenter Co.	8.72c
Graham Paper Co.	9.10c
	8.95c
	9.50c
Millcraft Paper Co.	9.25c
Toby Fine Papers, Inc.	8.72c
Barton, Duer & Koch Paper Co.	8.69c
Virginia Paper Co.	9.15c
Old Dominion Paper Co.	9.288c
Mudge Paper Co.	9.25c
Bradner, Smith & Co.	8.99c
	8.55c
	9.41c
Central Ohio Paper Co.	9.14c
	8.99c
	9.56c
Butler Co.	9.14c
	8.99c
	9.56c

High-Finish Red Sulphite

No. 265—30,000 lbs., flat, 24x36—320, in wrapped bundles. Min. order, 5,000 lbs.

Paper Corp. of US	8.03c*
Mudge Paper Co.	8.25c

High-Finish Chemical Wood Manila Tag

No. 271—150,000 lbs., 24x36—280; flat, cut any size, min. width 24 ins., max. width 38 ins.

Garrett, Buchanan Co.	6.25c
Geo. W. Millar & Co.	6.28c
Paper Corp. of US	6.74c*
Wilcox Walter Furlong Co.	6.31c
	6.51c
R. P. Andrews Paper Co.	7.25c
Perkins-Goodwin Paper Co.	6.32c
Stanford Paper Co.	6.25c
Whitaker Paper Co.	6.21c

Calendered Tag, Manila and Colored

No. 276—1,000,000 lbs., manila, 22½x28½—150; rolls, 23¼ and 26½ ins. wide (6-inch iron cores).

Barton, Duer & Koch Paper Co.	8.25c

No. 277—100,000 lbs., blue, brown, green, ivory, pink, red, salmon and yellow, 22½x28½—150; rolls 23¼ and 26½ ins. wide (6-inch iron cores). Min. order, one color, 10,000 lbs.

Barton, Duer & Koch Paper Co.	9.25c

Jute Tag

No. 280—250,000 lbs., 22½x28½—200 and 280; flat, cut 28x38 ins. Min. order, one weight, 10,000 lbs.

Mudge Paper Co.	11.00c

Manila Board

No. 281—100,000 lbs., 22½x28½—400; flat, cut 22x34 ins., in wrapped bundles with projecting colored-paper marker between each 100 sheets. Min. order, 10,000 lbs.

Paper Corp of US	5.49c*

Railroad Board, White and Colored

No. 302—200,000 sheets, white, flat, 22x34 ins., 4-ply, each 100 sheets fully banded. Min. order, 10,000 sheets.

Bulkley Dunton & Co. (Per M sheets)	34.38c
Walker, Goulard Plehn Co.	34.07c
Paper Corp. of US	34.06c*
R. P. Andrews Paper Co.	34.37c
Stanford Paper Co.	33.96c
Barton, Duer & Koch Paper Co.	34.00c
Virginia Paper Co.	31.71c
Old Dominion Paper Co.	33.557c
Bradner, Smith & Co.	33.80c

No. 303—20,000 sheets, white, flat, 22x34 ins., 8-ply, each 100 sheets fully banded. Min. order, 5,000 sheets.

Bulkley Dunton & Co. (Per M sheets)	49.46c
Walker, Goulard Plehn Co.	49.00c
Paper Corp. of US	48.99c*
R. P. Andrews Paper Co.	49.43c
Stanford Paper Co.	49.00c
Barton, Duer & Koch Paper Co.	48.95c
Virginia Paper Co.	48.48c
Old Dominion Paper Co.	48.26c
Bradner, Smith & Co.	48.62c

No. 304—20,000 sheets, white, flat, 22x34 ins., 14-ply, each 50 sheets fully banded. Min. order, 5,000 sheets.

Bulkley, Dunton & Co. (Per M sheets)	72.66c
Walker, Goulard Plehn Co.	72.00c
Paper Corp. of US	71.98c*
R. P. Andrews Paper Co.	72.63c
Stanford Paper Co.	71.87c
Barton, Duer & Koch Paper Co.	71.90c
Virginia Paper Co.	71.23c
Old Dominion Paper Co.	70.92c
Bradner, Smith & Co.	71.38c

No. 305—150,000 sheets, ash gray, green orange and red, flat, 22x34 ins., 4-ply, each 100 sheets fully banded. Min. order, one color, 5,000 sheets.

Bulkley, Dunton & Co. (Per M sheets)	43.04c
Walker, Goulard Plehn Co.	42.65c
Paper Corp. of US	42.64c*
R. P. Andrews Paper Co.	42.99c
Stanford Paper Co.	42.63c
Barton, Duer & Koch Paper Co.	42.60c
Virginia Paper Co.	42.19c
Old Dominion Paper Co.	41.998c
Bradner, Smith & Co.	42.33c

Wood Bristol, Colored

No. 306—250,000 lbs., buff, 22½x28½—150; rolls, 20 ins. wide (6-inch iron cores).

Walker, Goulard Plehn Co.	4.99c
Old Dominion Paper Co.	4.947c
Frank Parsons Paper Co.	5.50c

No. 307—50,000 lbs., mellon, flat, 20x30—172; in wrapped bundles with projecting colored-paper marker between each 100 sheets.

No bids.

No. 308—350,000 lbs., blue, buff, gray, green, mellon, pink and yellow, 22½x28¼—184; rolls, 20 ins. wide (6-inch iron cores).

D. L. Ward Co.	5.09c
Old Dominion Paper Co.	5.047c

United States Postal Card Bristol

No. 325—1,500,000 lbs., 22½x28½—188; rolls, 22 and 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

R. P. Andrews Paper Co.	5.86c
Stanford Paper Co. (600,000 lbs. only)	6.06c
Barton, Duer & Koch Paper Co. (total tonnage 1,500,000 lbs. lots 325, 326, 327)	6.11c
Whitaker Paper Co.	5.91c

No. 326—1,500,000 lbs., 22½x28½—188; rolls, 22 and 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

R. P. Andrews Paper Co.	5.86c
Stanford Paper Co. (600,000 lbs. only)	6.06c
Barton, Duer & Koch Paper Co.	6.11c
Whitaker Paper Co.	6.16c

No. 327—1,500,000 lbs., 22½x28½—188; rolls, 22 and 33 ins. wide and 36 ins. in diameter (6-inch iron cores).

R. P. Andrews Paper Co.	5.86c
Stanford Paper Co. (600,000 lbs. only)	6.06c
Barton, Duer & Koch Paper Co.	6.11c
Whitaker Paper Co.	6.16c

Pressboard, Colored

No. 351—40,000 sheets, red, flat, 24x32 ins., thickness .0140 inch. Min. order, 5,000 sheets.

Garrett, Buchanan Co. (Per C sheets)	7.59c
Walker, Goulard Plehn Co.	7.50c*
R. P. Andrews Paper Co.	7.25c
Mathers-Lamm Paper Co.	7.59c
Resolute Paper Products Corp.	7.4627c
Barton, Duer & Koch Paper Co.	7.75c
Whitaker Paper Co.	7.24c

No. 352—20,000 sheets, gray, flat, 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.

Garrett, Buchanan Co. (Per C sheets)	24.86c*
Bird & Son, Inc.	19.50c
Walker, Goulard & Plehn Co.	25.40c*
R. P. Andrews Paper Co.	23.59c
Mathers-Lamm Paper Co.	24.87c*
Resolute Paper Products Corp.	24.4625c
Barton, Duer & Koch Paper Co.	18.85c
Whitaker Paper Co.	23.74c

News Board

No. 360—1,200,000 lbs., 26x38 ins., No. 100, flat, cut any size, min. 21x32 ins., max. 40x52½ ins. (to be trimmed square on four sides).

R. P. Andrews Paper Co.	2.325c
Stanford Paper Co.	2.30c
Resolute Paper Products Corp.	2.3745c
Clifton Paper Board Sales Co.	2.725c
Barton, Duer & Koch Paper Co.	2.34c
Whitaker Paper Co.	2.30c
Virginia Paper Co.	2.303c
Old Dominion Paper Co.	2.316c
Mudge Paper Co.	2.324c

Binder's Board, No. 1 Quality

No. 366—800,000 lbs., flat, to trim 25x30 ins., Nos. 16, 18, 20, 25, 30 and 40.

R. P. Andrews Paper Co.	4.14c
Mathers-Lamm Paper Co. (440,000 lbs. only)	4.085c
Barton, Duer & Koch Paper Co.	4.225c

No. 367—70,000 lbs., 25¾x30¾ ins., Nos. 12 and 20; flat, to trim 34x44 ins.

R. P. Andrews Paper Co.	4.14c
Barton, Duer & Koch Paper Co.	4.225c

Binder's Board Best Quality

No. 368—50,000 lbs., flat, to trim 20x30 ins., and 22x28 ins., Nos. 18, 20, 25, 30, 35, 40 and 45. Min. order, 5,000 lbs.

Consolidated Paper Co. (Carloads)	5.50c
	5.40c
R. P. Andrews Paper Co.	5.639c
Barton, Duer & Koch Paper Co.	5.75c
	5.25c

LAST YEAR'S BONDS GOT US STARTED

THIS YEAR'S BONDS

ARE TO WIN!

★ Last year saw nearly 30,000,000 workers voluntarily buying War Bonds through some 175,000 Pay-Roll Savings Plans. And buying these War Bonds at an average rate of practically 10% of their gross pay!

This year we've got to top *all* these figures—and top them handsomely! For the swiftly accelerated purchase of War Bonds is one of the greatest services we can render to our country . . . and to our own sons . . . and our neighbors' sons. Through the mounting purchase of War Bonds we forge a more potent weapon of victory, and build stronger bulwarks for the preservation of the American way of life.

"But there's a Pay-Roll Savings Plan already running in my plant."

Sure, there is—but how long is it since *you've* done anything about it? These plans won't run without winding, any more than your watch! Check up on it today. If it doesn't show substantially more than 10% of your plant's pay-roll going into War Bonds, it needs winding!

And you're the man to wind it! Organize a vigorous drive. In just 6 days, a large airplane manufacturer increased his plant's showing from 35% of employees and 2½% of pay-roll, to 98% of employees and 12% of pay-roll. A large West Coast shipyard keeps participation jacked up to 14% of pay-roll! You can do as well, or better.

By so doing, you help your nation, you help your workers, and you also help yourself. In plant after plant, the successful working out of a Pay-Roll Savings Plan has given labor and management a common interest and a common goal. Company spirit soars. Minor misunderstandings and disputes head downward, and production swings up.

War Bonds will help us win the war, and help close the inflationary gap. And they won't stop working when victory comes! On the contrary—they will furnish a reservoir of purchasing power to help American business re-establish itself in the markets of peace. *Remember, the bond charts of today are the sales curves of tomorrow!*

You've done your bit. Now do your best!

THIS SPACE IS A CONTRIBUTION TO AMERICA'S ALL-OUT WAR EFFORT BY

PAPER TRADE JOURNAL

Tentative Program for Superintendents War-Time Service Convention

The following is the tentative program for the twenty-fourth annual meeting of the American Pulp and Paper Mill Superintendents Association which will be held in New York, June 15, 16 and 17, at the Commodore Hotel and which will be a war-time service meeting:—

Monday, June 14

ALL-DAY RECEPTION AND GET-TOGETHER for early arrivals.

1:00 P.M. REGISTRATION—Grand Ballroom Foyer.

7:00 P.M. AFFILIATES' DINNER—West Ballroom.

Tuesday, June 15

9:30 A.M. BUSINESS MEETING—East Ballroom.
Grover Keeth, President, presiding.

10:30 A.M. GENERAL CONFERENCE—East Ballroom.
Grover Keeth, President, presiding.
"Training within Industry" (including demonstration of training technique) by Sterling W. Mudge, District Director, Training within Industry Service, War Manpower Commission, New York, N. Y.

12:20 P.M. LUNCHEON—Grand Ballroom.
SPEAKER—S. D. Kirkpatrick, Editor Chemical & Metallurgical Engineering Magazine, McGraw-Hill Publications, New York, N. Y.
SUBJECT—"Mobilizing Science and Technology for the War and Post War."

2:00 P.M. GENERAL CONFERENCE—East Ballroom.
"Raw Materials—Pulp, Pulpwood and DeInked Papers"—E. W. Tinker, Executive Secretary, American Paper and Pulp Association, New York, N. Y.
Panel Discussion—"Pulpwood Supply"—E. W. Tinker, Coordinator. Four wood experts on panel.
Dine Where You Will.

Wednesday, June 16

9:30 A.M. GROUP MEETINGS.
Board—West Ballroom.
Fine and Coated Papers—East Ballroom.
Tissue—Parlor B.
Kraft—Parlor C.
Lunch Where You Will.

2:00 P.M. GENERAL CONFERENCE—East Ballroom.
"Women in Industry"—Miss Ellen M. Davies, Personnel Director, Chase Brass & Copper Company, Waterbury, Conn.
Panel Discussion—"Women in Paper Mills." Four Personnel Directors or Employment Managers on panel.

4:30 P.M. BUSINESS MEETING FOR ASSOCIATION MEMBERS—East Ballroom.
Election of Officers.

6:00 P.M. GET-TOGETHER PARTY—West Ballroom.
Hosts—The Allied Industries.
Wives of Association Officials pouring.

7:30 P.M. DINNER (informal)—Grand Ballroom.
Speaker and Subject to be announced.
Dancing.
Music by Earl Carpenter and his Miami Biltmore Orchestra.

Thursday, June 17

9:30 A.M. GROUP MEETINGS.
Power and Plant Engineers—West Ballroom.
Chemical Pulp—East Ballroom.
Newsprint and Groundwood—Parlor B.
Finishing, Storing and Shipping—Parlor C.

12:20 P.M. LUNCHEON—Grand Ballroom
Speaker and Subject to be announced.

2:30 P.M. GENERAL CONFERENCE—East Ballroom.
"Critical Materials"—James L. Ritchie, Chief Materials Dept., Pulp and Paper Section, W. P. B., Washington, D. C.
"New Developments and Trends in the Paper Industry."—Robert Zaumeyer, Chief New Developments Dept., Pulp and Paper Section, W. P. B., Washington, D. C.

GROUP MEETINGS

Wednesday, June 16

1. Board:—a. Felts. b. Stock preparation equipment.
2. Fine and Coated Papers:—a. Clays, starches, fillers and colors. b. Rubber and rubber synthetics.
3. Tissue Paper:—a. Paper Machines Adaptable to Facial Tissues. b. Fibrous Raw Materials.
4. Kraft Paper:—a. Chemicals. b. Pumps.

Thursday, June 17

1. Chemical Pulp:—a. Recovery equipment. b. bleaching.
2. Newsprint and Groundwood:—a. Wires. b. Paper Machines.
3. Finishing, Storing and Shipping:—a. Shipping equipment. b. Power and lift trucks.
4. Power and Plant Engineers:—a. Steam and electrical equipment. b. Bearings and packings.

Paper Concerns in Bond Drive

TORONTO, Ont., May 17, 1943—Pulp and paper companies have done their share of the bond buying in Canada's fourth Victory Loan. They had taken about $14,000,000 worth before the campaign was half over, and it is expected that by tonight they will have subscribed at least $20,000,000. Heading the list of paper companies buying bonds during this campaign were Ontario Paper and Quebec North Shore Paper Companies and Canadian International Paper Company, with purchases of over $3,000,000 each. The score sheet shows: Ontario Paper and Quebec North Shore Paper Company, $3,500,000; Canadian International Paper Company, $3,140,000; Consolidated Paper, $2,950,000; Powell River Company, $1,287,000; Price Bros. & Co., $1,000,000; Spruce Falls Pulp and Paper $1,000,000; Bathurst Pulp and Paper Company, $600,000; E. B. Eddy Co., $500,000; Hinde & Dauch Company, $500,000.

Discuss More Uses for Paper Sacks

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 26, 1943—Possibility of expanding the use of paper shipping sacks for packing various chemicals was discussed at a meeting of the Paper Shipping Sack Industry Advisory Committee and War Production Board officials in Washington recently.

The committee was told that such bags can be used satisfactorily for many chemicals which heretofore have been packaged in metal or fiber drums. These drums are critical now, and the packaging conversion will save large quantities of them. The supply of paper shipping sacks is not as critical as that of drums.

The Chemicals Division has established "task groups" representing various segments of the chemical industry to determine what chemicals can be packed in paper and the paper requirements for those chemicals.

Packaging equipment problems will be taken into consideration in determining how far the chemical industry can go in converting to paper, and a thorough study will be made as to what new facilities will be needed. It is known that paper packaging is already being used for some chemicals, such as tri-sodium phosphate and alkali.

The Containers Division also plans to establish "task groups" representing the bag industry to consider the technical problems of making bags to meet the new uses.

OPA Calls Fine Paper Meetings

The National Paper Trade Association of the U. S., Inc., A. H. Chamberlain, executive secretary, 220 East 42nd street, New York, has informed its members that the Paper and Paper Products Branch of the Office of Price Administration, has requested the association to announce that a series of open meetings will be held as follows:

June 1, Hotel Commodore, New York, N. Y.; June 2, Copley Plaza Hotel, Boston, Mass.; June 4, Hotel Cleveland, Cleveland, Ohio; June 7, Palmer House, Chicago, Ill.; June 10, Hotel Baker, Dallas, Tex.; June 14, Hotel Ansley, Atlanta, Ga.

All meetings start at 10 a.m. and all fine paper merchants are invited to attend. This will provide officials with an opportunity to present and explain the new regulations governing merchants' sales of fine papers.

TAPPI Kalamazoo Valley Section

Looking at the World is the subject to be presented by Smith Burnham, professor (rtd.) of the Western Michigan College of Education, at the meeting of the Kalamazoo Valley Section of the Technical Association, Kalamazoo Country Club, Kalamazoo, Mich., on Friday, June 4, 1943.

Golf playing will start at 1:00 P.M. and a buffet supper is scheduled for 8:00 P.M.

Prof. Burnham has travelled extensively in Europe. He will discuss the psychological reactions of the enemy-conquered countries to the forward-marching American and Allied Armies.

Members and nonmembers should notify E. B. Taylor, section secretary, American Cyanamid and Chemical Corporation, Kalamazoo, Mich., if they plan to attend.

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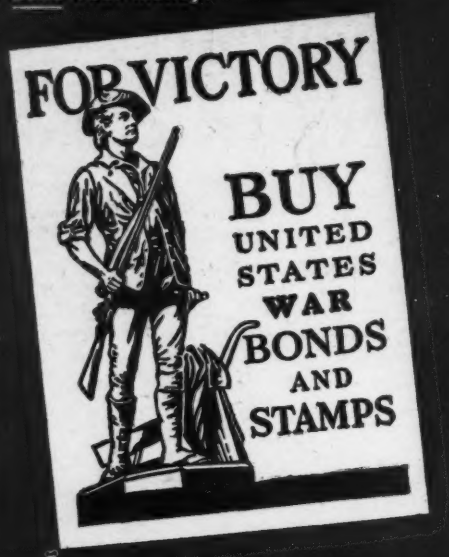

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Paper a Great Historic Industry

By Alonzo A. Thomas

Mr. Thomas, in submitting the following article, states that he is looking forward with great pleasure to June 1, 1943 when he will have completed 70 years in the paper and twine industry. He is still actively connected with the industry as a representative of the Wilkinson Grey Company, 228-238 East 44th street, New York, of which H. J. Grey is president.

Paper has played and still continues to play an exceptionally important part as one of the world's greatest historic industry and to continue as the world's indispensable asset.

Most of the Assyrian literature was in the form of minute characters in baked clay. Then evolved the papyrus. The stem of the plants were made into sails, mats, cloth, and above all, writing material. And then followed the vegetable parchment or parchment paper. Paper may be divided into three classes: writing paper, printed paper and wrapping paper.

Of making many books there is no end. Books are the keys to magic portals and invaluable manuscripts of great variety that cannot be estimated. It was paper that has given us the priceless libraries of the world and have been handed down to us through countless ages as the gifted products of the giant master minds of the world, the vast intellectual ocean whose waves touch every shore of thought.

Music is the language of delightful sensations more eloquent than words. Music is one of the precious gifts from our Father God, the God of Love, for it removes from the heart the weight of sorrow and the fascination of evil thoughts.

The Priceless Value of Twine: There are many kinds of strings, such as cord, twine and thread, which is put to unlimited use and plays an important part in our lives. Taking up the thread of my subject, it is very evident that our good friends—I crave your indulgence by the following phrase—It is a clear case of a rope in on their part.

Twine—strong thread composed of many strands—which accounts for our stranded daily conditions with a string of propositions.

Now, gentlemen, we all can remember the thread that sowed our wild oats in our early life. Then we are of one ac-cord today, in harmony and in unison. Then there are the dis-cords of life, which strikes the ear happily or disagreeably owing to the vibrations which they produce. Then we have the cord-age. Then there is the lovers twine.

Oh, let me twine my arms about thee.

Friends, now fast sworn, who twine in love.

Again, there is the thread of a pure life whose tongue is not string-less but a stringed instrument obedient and responding to the inspired bow as it draws across the heart strings attuned to the sweetest melody of unalloyed pleasure of a gifted life. May we now entwine the strands of perpetual mirth of good fellowship, of esteem, of honor and excellent cheer into an indestructible cord emblematic of the time honored and loyal friendship that will unite us more firmly together.

Liquidate Morgan L. Ellis & Co.

Boston, Mass., May 24, 1943.—Morgan L. Ellis, who is liquidating the business of Morgan L. Ellis & Co., Inc., paper merchants, is maintaining an office in this connection at 263 Summer street. Mr. Ellis is now associated with Hurlbert & Hatfield, paper merchants, in the sales department.

Slows Pulpwood Movement

[FROM OUR REGULAR CORRESPONDENT]

CAPE VINCENT, N. Y., May 24, 1943—The moving of Canadian pulpwood during the summer and fall months for Northern New York pulp and paper mills is expected to be hard hit from the lack of adequate St. Lawrence River and Great Lakes shipping. It is understood that there will be no pulpwood brought into this port because of the shortage of boats and only about 75 will operate between Cape Vincent, Clayton and Gulf of St. Lawrence ports in contrast to 133 freighters during normal times. In consequence Cape Vincent will be a dead port this summer as far as commerce is concerned and undoubtedly a large share of the pulpwood used by Northern New York mills will have to be shipped in by rail or the mills will be compelled to curtail production of paper.

The St. Regis Paper Company expects to receive about 25,000 cords of Canadian pulpwood by water transportation through the port of Waddington this summer. Each cargo will consist of about 1,200 cords of wood and the first ship will arrive at the port about June 1. At the big Deferiet mill of the concern it is estimated that from 50,000 to 60,000 cords will be required and at the Norfolk mill about 30,000 cords will be required. The plant of the Harrisville Paper Corporation, Harrisville, is expected to need about 10,000 cords.

Indianapolis Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., May 24, 1943—Paper demand in most items continued good during the last week with supplies fair. There is a feeling here that supplies for most grades of paper will be nearly adequate and that the severe shortage predicted last year will not materialize. On those grades where ceiling prices have been fixed, the ceiling has been reached for the most part.

Newsprint demand was good and in spite of newsprint restrictions, the local papers seem to be doing all right. The building paper and roofing demand picked up a trifle, but is hardly ahead of last year when the volume was very small. Some believe the summer will show some improvement, but the year's total volume will be nothing to brag about.

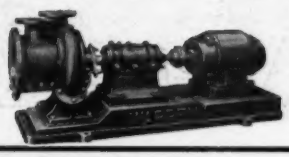
Box factories here are working almost to capacity and apparently are limited in production largely because of lack of experienced labor. Most of the local box plants have defense contracts and much of the production is rated as essential. Even with two and three shifts help is so scarce they are unable to fill orders promptly. The increased use of boxes made of paper instead of wood during the last year or so has thrown an added strain on the plants.

Little change was seen in the fine paper market. Demand was good and prices strong for all grades.

A late spring has thrown the building paper demand out of joint. Rains and cold during the last month has set the season back at least a couple of weeks. Thus far there has been little demand for either roofing or building paper. There are many who believe this will be a better year for these lines than last, but there appears little now to bear out this assumption. Rather to the contrary.

Up to the present there has been little demand for summer specialties due to weather conditions. It is certain that this year will not be a banner one for these items, due to tire and gasoline rationing.

Common paper demand continued **fair.**



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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger

EDITOR

Vol. 116 May 27, 1943 No. 21

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Twenty-fourth Annual Convention, Commodore Hotel, New York, June 15-17.

POST-WAR PLANS

Successful accomplishments of large and complicated projects must depend greatly upon well prepared plans. In time of war prepare for peace, is one of the major trends of current opinion. The global conflict has thus far in its years of widespread destruction, upset the normal operations of former economic and social forces and practices and the task of reestablishing order out of this chaotic tangle is one of great importance and magnitude. As no other country possesses the resources to render aid comparable to that which can be extended by the United States, government plans are already being formulated to lay the foundations for what all hope may be a better and more enduring peace. The war is not yet won, but there is little doubt now of an ultimate allied victory. Consequently, consideration is being more and more devoted to that kind of a peace the world will have after the last shot is fired. The precise kind of peace that will result must, of course, be dependent upon what kind of an agreement all the nations involved will cooperate to establish and to firmly maintain.

A thoughtful presentment of the world of tomorrow, was given in an address by F. C. Crawford, president of the National Association of manufacturers, before the Economic Club of Chicago on May 6, 1943. Mr. Crawford spoke on the topic, It can be a better world afterward, and said: "Neither defeat nor victory really ends a war. It is what comes afterward that will decide whether this supreme job of war has been worthwhile; whether we have won lasting peace or just a respite in which to grow and train another generation for war. . . . The post-war concern of the American people, make no mistake about it, is centered in jobs. And make no mistake about this either: when the government planners come up with the idea of 'guaranteed jobs', it warms the cockles of the hearts of the American folk. Of course, the promisers, as usual, are none too specific as to what they mean by 'guaranteed jobs'. Do they mean jobs at inflated war pay, jobs to all those not normally in the working force of the nation, or jobs raking leaves as in the 30's? But it is a fair question to ask, 'Well, if government can guarantee jobs, why doesn't private enterprise do the same?' Private enterprise cannot guarantee jobs but it can do something far more important—it can create jobs. . . . Even the most optimistic enterpriser among us is not deluding himself that existing industry can make the 55 or 56 million jobs which will be needed in the post-war period. If we have to depend on existing companies alone to provide full employment it will mean that millions of workers would be working at useless jobs. 'Made work' in industry would be just as wasteful as 'made work' has been under government spending programs. 'Made work' under private enterprise would produce products as costly to the consumer as 'made work' has been to the taxpayer. The truth, still undiscovered by the theorists, is that mother doesn't fill her market basket to produce a demand for labor, she fills it to feed her family. People don't paint houses, buy refrigerators, purchase cars to make jobs; they buy because it fills a personal want—not a social need."

Continuing Mr. Crawford said in part: "It is a triangle of American plenty—plenty of jobs, plenty of better living—through production. At the top corner is the most important element of all, the consumers, which let us call the market. The American market alone is 133 million people. Over in the second corner of the triangle of industry is capital. And looking closely, we see that capital is also the same 133 million of Americans. In the third corner of the triangle is labor. And again, this element is the same 133 million of Americans we found in the other corners. Thus the three demands on industry are just the natural demands of everyday human nature. Now, the fourth element in our unusual triangle is management—in the middle as always. To be successful, management must reconcile the three apparently irreconcilable forces."

Pointing out that the lesson of the triangle is clear, Mr. Crawford said in part that, "When private capital puts more money into the triangle, it enables management to make goods better and cheaper. Consequently when the consumer market pays less, it buys more and thus new jobs are born. The only other proposal for providing post-war jobs is through government spending. . . . The government planners try to short-circuit the capital corner and the creation of more production through efficiency. They begin by the creation of artificial purchasing power at the top

of the triangle, the market.... Now money doesn't grow on trees. The money which government distributes to market is taken away from all three corners of the triangle, market, capital and labor, through taxes or inflation, or both. . . . Government cannot create wealth. It can, by taxation and 'pump-priming' shift wealth from the more fortunate to the less prosperous. In order to make the shift government must take from those who have the capital, which if invested, would make more efficient production possible. Thus this shifting of purchasing power does not create new wealth but rather discourages it. . . . The fallacy is evident. Efficiency of production has not been improved. New wealth has not been created. There has been nothing accomplished by the sharing of an existing insufficiency of wealth."

The speaker said that the test by which every postwar plan should be measured is, "Will it stimulate the investment of capital. . . . Dr. Slichter of Harvard eloquently supports the connection between 'larger profits' and 'larger payrolls.' He says that labor and capital will both discover that the conditions which make it possible to arrive at both larger payrolls and larger profits are the very same conditions; that this discovery will lead to cooperation between labor and capital and that this cooperation 'will make all previous efforts to raise the standard of living seem feeble' ".

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
April 10	90.0	April 11	98.9
April 17	89.9	April 18	100.8
April 24	89.8	April 25	100.1
May 1	85.7	May 2	99.8
May 8	91.7	May 9	98.2
May 15	*91.4*	May 16	97.8

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.2	88.9	89.5	*88.8*	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	77.8	89.6	67.5	80.2	85.7	91.7	102.2	*88.9*
Year Average..	80.4	79.8	71.5	83.4	85.6	97.4	90.4	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	*94*	..	..	..	..	..	..	..	..	..

Week ending April 10, 1943—95
Week ending April 17, 1943—96
Week ending April 24, 1943—97
Week ending May 1, 1943—89
Week ending May 8, 1943—96
Week ending May 15, 1943—*96*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Triple-chain woven wire cloth, magnified about 32 times.

It is not easy to develop a product which will be used again and again — which is to be *standardized.* It is possibly even more taxing to have to evolve a *special* product — one which must be equally right, but will never be able to prove its case from a world of evidence. The triple-chain weave shown above is just such a specialty. It is comparatively delicate, fragile; calls for engineering with a very fine touch. Distinguished by extreme flexibility, a unique and smooth papermaking surface and good drainage characteristics, it has won a wide, lasting acceptance in the manufacture of certain grades of specialized tissues.

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Commercial Grade — Typical Analysis: Total Al_2O_3, 16.2%; Combined Al_2O_3, 15.7%; Basic Al_2O_3, 0.5%; FeO, 0.20%; Insoluble, 5.8%.

AMMONIA, ANHYDROUS

Typical Analysis: NH_3 (mol. wt. — 17.03); residue on evaporation 0.03%; Pyridine — trace; inert gas in liquid phase — none; inert gas over liquid phase — trace.

AMMONIA, AQUA

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U. S. P. and Technical grades. Technical grade: white to yellowish white granules or powder; assay, 99.25% min.; odor, characteristic; solution in 10% Na_2CO_3 (1:6), slightly turbid or opalescent and practically colorless; approx. 10-20% retained on 20 mesh; approx. 100% retained on 100 mesh.

CHLORINE

Clear, amber colored liquid about 1½ times as heavy as water. Conforms with American Water Works Association specifications.

COUMARIN

Fine or large white crystals; melt (liquid), clear and colorless; m.p. 68.8°C. min.; solubility in ethyl alcohol (1:10), complete; loss on drying 0.03% max.; ash 0.05% max.; conforms to N. F. test for acetanilid; 5.0% max. retained on 4 mesh screen; 95.0% min. retained on 8 mesh screen.

DIBUTYL PHTHALATE

Clear, oily liquid; color (APHA) 10 max.; odor, slight; acidity (as phthalic acid) 0.01% max.; sp. g. at 20°/20°C., 1.048 ± 0.001; refrac. index at 25°C., 1.4905 ± .001; assay (ester content) 99% min.; sulfur (copper strip test) negative.

FERRISUL

Anhydrous Ferric Sulfate. Pellets 4-40 mesh. Typical analysis, 90% min. $Fe_2(SO_4)_3$.

MONOAMMONIUM PHOSPHATE

$NH_4H_2PO_4$. Food grade meets all U. S. Pure Food Law requirements. Special grades on request. A white crystalline material, stable in air and soluble in hot and cold water; pH of 1% solution, 4.4.

DIAMMONIUM PHOSPHATE

$(NH_4)_2HPO_4$. Food grades meet all U. S. Pure Food Law requirements. Special grades on request. White crystalline material, stable in air and very soluble in water; pH value of 1% solution, 7.75. At temperatures above 70°C. aqueous solutions lose ammonia readily.

MURIATIC ACID

Supplied in 18° Be., 20° Be., 22° Be. grades. Typical analysis: 18° Be., 27.9% HCl.; 20° Be., 31.5% HCl.; 22° Be., 35.2% HCl.

NITROCELLULOSE SOLUTONS

Made from RS (regular soluble) cotton of any desired viscosity. Viscosity, solid content and solvent composition can be regulated to meet customer requirements.

PHTHALIC ANHYDRIDE

Supplied in three grades with crystallizing points of 131.2°C., 131.0°C. and 130.7°C. White flakes; solution in benzene (1:20) clear; ash 0.03% max. Maleic acid: 131.2°C., 0.10% max; 131.0°C., 0.15% max.; 130.7°C., 0.15% max.

SALT CAKE

Sodium Sulfate. Typical analysis: 94 to 95% Na_2SO_4 available.

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Seven specialty plasticizers for protective coatings. See 40-page book "Plasticizers and Resins."

SANTOBRITE

Sodium Pentachlorophenate. Supplied as powder or in 1-oz. briquettes. A water-soluble industrial preservative and fungicide.

SODIUM ALUMINATE

White soluble powder containing 90% soluble Sodium Aluminate. Extremely low in iron and insoluble material. Stable several days in solutions up to 10% concentration although containing a maximum of only 5% free Caustic Soda.

SANTOSITE

Sodium Sulfite Anhydrous, technical. Tan to slightly pink crystalline powder; assay (Na_2SO_3) 93.0% min.; foreign odor, very faint max.; solution, filtrate from a 10% solution in water not darker than APHA 150 max.

MERCLOR

Sodium Hypochlorite. Standard form; liquid. Typical Analysis: 22° Be., 12% available chlorine by volume.

SANTOLITES

Synthetic resins. For information see 40-page book "Plasticizers and Resins."

SODIUM BISULFITE

Forms are liquid and anhydrous. Typical Analysis of Liquid — 33° Be.: SO_2, 21.5%; Na_2SO_4, 3.0%; Fe, 0.006%. Typical Analysis of Anhydrous: SO_2, 66%; Na_2SO_4, 1.5%; Fe, 0.002%.

SULFURIC ACID

Standard Strengths: 58° Be., 60° Be.; 66° Be.; 98% H_2SO_4; oleums.

TRICRESYL PHOSPHATE

Clear, practically colorless liquid; sp.g. at 20/20°C., 1.162 ± 0.005; acidity (as H_3PO_4) 0.01% max.; free phenols (permanganate test), a distinct purple color to be present after 30 minutes.

TRISODIUM PHOSPHATE

$Na_3PO_4 .12H_2O$ White crystalline material, uniformly sized; quickly soluble in water giving an alkaline reaction; pH value of 1% solution, 11.8.

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Grades: Crystalline and anhydrous. pH value of 1% solution 10.2.

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
Edited by R. G. Macdonald, Secretary

Comparison of Calender Treatments*

By Albert Yraola[1]

Abstract

Patent coated paperboard was calender treated on the paper machine with solutions of chlorinated starch, tapioca starch, and polyvinyl alcohol, for purposes of comparison. Increasing concentrations of solutions of each of these materials raised the wax pick, surface oil absorbency, and air porosity tests, and increased the gloss obtained when the board was proof-printed with a gloss ink.

No. 1 patent coated paperboard was calender-treated on the paperboard machine with solutions, of several strengths, of chlorinated starch, tapioca starch, and polyvinyl alcohol, for purposes of comparison of the effects of these materials on the printing quality of paperboard. The effects on printing quality were determined by examining proofs from a precision proofpress, and by making wax pick tests, surface oil absorbency tests, and densometer tests for porosity. Precautions were taken to prevent significent variations in the board and calendering conditions during the manufacture of the board tested. The tests were made on board that would display the varying effects of the materials most clearly; it had an all bleached sulphite liner, and was well formed, hard sized, and highly finished.

An ordinary commercial grade of chlorinated starch, No. 1 quality tapioca starch, and a high viscosity polyvinyl alcohol were used. The upper limit of concentration of solution of each material was determined by the attainment of a viscosity somewhat above that which could be normally run on the calender stack of a board machine. This limit was at 16% concentration for chlorinated starch, 4% for tapioca and 6% for the polyvinyl alcohol used. Usually, for example, 12% concentration of chlorinated starch or 5% of polyvinyl alcohol is not exceeded in practise.

The starch solutions were prepared by mixing the required amount of starch with half of the necessary water, added cold, and then heating until the starch gelatinized. The solutions were then brought up to volume with cold water, and allowed to cool to room temperature before using. The polyvinyl alcohol solutions were made by stirring the necessary amount of dry powder into half of the necessary water, heating to boiling, and then diluting to volume with cold water. These, too, were cooled to room temperature before using.

Testing Methods

Dennison paper testing waxes were used for the wax pick tests, which are of interest in testing printing boards because they indicate directly the resistance of the board surface to picking under tacky inks or varnishes. Knowledge of the absorbency of the surface of a board to printing inks is of interest because the rate of drying and freedom from mottling of some types of ink, the gloss produced by gloss inks and varnishes, offsetting, and rate of ink consumption, are greatly affected by it. Surface oil absorbencies were determined with an apparatus similar to that described by Wehmhoff *(1)*.

Air porosities were determined on a Gurley improved densometer, the times reported being the time in seconds for 100 ml. of air to pass through the sheet.

Sample sheets were printed on a Vandercook precision proof press. The form was a solid area and a high gloss ink was used. Paperboard users generally are interested in the appearance of solid areas of print, although fine print and halftones sometimes have to be considered. In judging the quality of the proofs the production of uniform areas of glossy print was the criterion.

Results

The numerical test results found are given in the

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; Chief Chemist, Hinde and Dauch Paper Company of Canada Limited, Toronto, Ont.

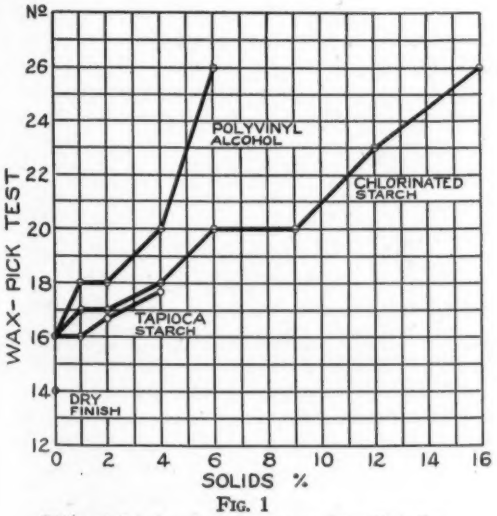

FIG. 1
Effect of Solution Concentration on Wax Pick Test

three graphs of wax pick, oil absorbency and porosity. Increasing the concentration of each of the three solutions had the effect of raising the wax pick, surface oil absorbency, and air porosity of the board. The effect was much more apparent in lower concentrations for tapioca starch and polyvinyl alcohol than for chlorinated starch.

In Fig. 1 it is seen that the wax pick test of board calender treated with plain water was 16, that it rose to 17 when a 1% solution of chlorinated starch was applied, to 18 with a 4% solution, and to 26 with a 16% solution. The effect of tapioca starch closely paralleled that of chlorinated starch up to the highest concentration used, 4%. A 1% solution of polyvinyl alcohol increased the wax pick test to 18, a 4% solution to 20, and a 6% solution to 26. Dry-finish board had a pick test of 14.

Graphs of surface oil absorbencies are plotted in Fig. 2. That of dry-finish board was 15 seconds, and of water-finished board 30 seconds. The effect of chlorinated starch did not become apparent until a concentration of 4% was reached, when the oil absorbency was 55 seconds. From that point on the increase with increasing concentration was quite marked until it reached 640 seconds for 16%. Tapioca starch affected the oil absorbency more markedly in lower concentrations than chlorinated starch, a 1% solution having nearly twice the oil absorbency of 1% chlorinated starch, and a 4% solution producing an oil test of 260 seconds. Polyvinyl alcohol affected the oil absorbency to a very marked degree; a 1% solution resulted in an oil test of 92 seconds, a 2% solution in a test of 600 seconds, and a 6% solution closed the sheet so thoroughly that 18 hours were required for completion of the tests.

Graphs of air porosities in Fig. 3 closely duplicate those of oil absorbencies. Again, chlorinated starch did not show a marked increase until a concentration of 4% had been exceeded, when the curve rises sharply until 1820 seconds at 16% solids is reached. Dry finish board had a porosity of 340 seconds, and plain water finish gave 500 seconds. The effect of tapioca starch was marked at 1% (592 seconds) and the curve rises sharply to 992 seconds for a 4% solution. The effect of polyvinyl alcohol is even more marked, a 1% solution giving an air porosity of 944 seconds, a 2% solution 1440 seconds, and a 4% solution 7000 seconds.

The most significant property from the viewpoint

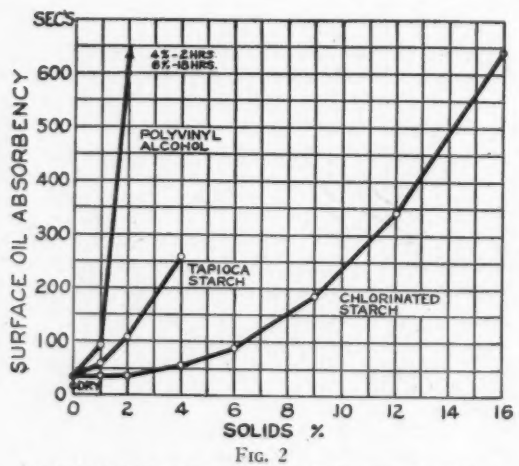

FIG. 2

Effect of Solution Concentration on Surface Oil Absorbency

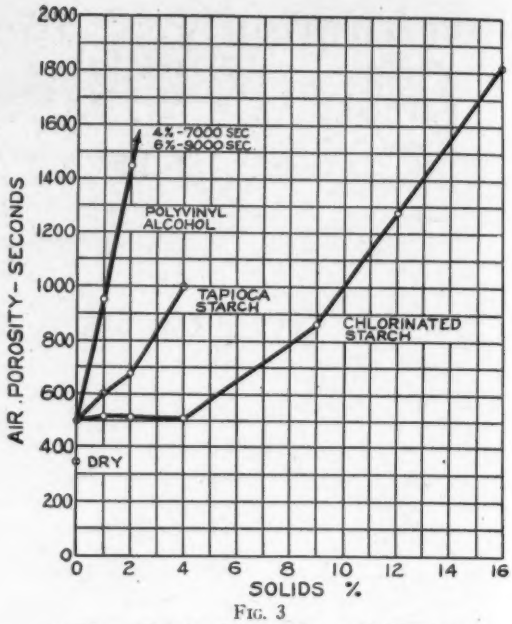

FIG. 3

Effect of Solution Concentration on Air Porosity

of board users is actual printing quality. Printed proofs showed that all three materials decreased the ink absorption (and therefore improved the gloss of the ink) as the solution concentration increased. If gloss printing, and therefore decreased surface absorbency, is desired it will be found that there is a minimum figure below which the surface oil absorbency cannot fall without adversely affecting the appearance of the result. If, on the other hand, an ink that dries partly by absorption is used it will be found that there is a maximum figure above which the oil absorbency (or porosity) cannot rise without retarding drying, and perhaps also causing shiny spots in what should be a flat ink.

Conclusions

Chlorinated starch, tapioca starch, and polyvinyl alcohol are all capable of making definite changes in the printing surface of board, as shown by pertinent tests and actual printing. The degree of the effect is dependent on the concentration of the solution employed and this can be determined when the purpose for which the board is intended is known.

Acknowledgment

Thanks are due to L. F. Winchell, Vice President and General Manager of the Hinde and Dauch Paper Company of Canada Limited, for the facilities for this work. Also to W. H. de Montmorency of the Gair Company of Canada for the densometer tests, and to J. T. Macdonald of the Hinde and Dauch Paper Company of Canada Limited for the graphs.

Literature Cited

1. B. L. Wehmhoff, "Evaluation of the Printing Quality of Paper," *Tech. Assoc. Papers* 18: 337 (1935).

L. W. Grubbs Made Junior Lieutenant

Lorin W. Grubbs, abrasive engineer for Norton Company, Worcester, Mass., for the states of Virginia, North Carolina, South Carolina and part of West Virginia and Tennessee has been commissioned a Lieutenant (j.g.) in the United States Navy. Charles A. Babbitt, who has had experience in the Norton research laboratories and in field work, will take over Mr. Grubbs' territory.

Developments in the Graphic Arts—1942*

By M. S. Kantrowitz[1]

In backing the war effort which demands every means of accomplishment scientists and craftsmen are working day and night in their laboratories and plants to discover new methods and processes. Shortages of raw materials brought about by the war and the limitation orders for their civilian use by the War Production Board have stimulated the development of substitute and new products.

This development report of the Graphic Arts Committee of the Technical Association of the Pulp and Paper Industry presents an outline of the major technical trends in the graphic arts industries for the year 1942.

Paper

Methods of Testing

The application of the electron microscope to problems of the pulp, paper, and paperboard industry is described by Sears and Kregel *(1)*.

Electron microscopes have been well-publicized during the past two years. The figures which represent the magnifications they make available have sounded somewhat astronomical, and coupled with the intriguing possibility of seeing some of the hitherto invisible, have lent themselves well to the enthusiastic treatment of feature writers. Happily, the subject warrants the enthusiasm, for electron microscopy is making valuable contributions to practical industrial problems as well as in purely scientific fields. Papermaking involves the intersection of surfaces and the manipulation and control of those surfaces. For example, fiber surfaces are important in the felting of fibers to form a sheet; beating and other stock treatments change the surface of fibers; and the interactions of surfaces are of importance in dyeing, sizing, filling, and coating. A number of papermaking materials and many of their interesting interactions cannot be seen in the ordinary optical microscope. Hence, the advent of the electron microscope, with its power of making visible structures that are one-fiftieth the size of the smallest that can be seen in the ordinary microscope, is a matter of more than passing interest to the industry. The discussion includes a brief description of the R. C. A. electron microscope, consideration of the characteristics of specimens suitable for examination in the microscope; a synopsis of methods of preparing specimens for observation, and a survey of some applications of electron microscopy to materials of interest to the pulp, paper, and paperboard industry.

A stain, composed essentially of acid fuchsin, picric acid, tannic acid, and National soluble blue 2B extra (Color Index No. 707), was used by Davis and Rynkiewicz *(2)* for identifying different fibers—namely, vegetable fibers (cotton or linen), synthetic fibers (acetate, nylon, cuprammonium, viscose, or vinyon), and animal fibers (silk or wool). The stain, a modification of the Hahn stain, is also useful in the identification of films of cellulose acetate or viscose (cellophane).

A new type of paper-thickness micrometer which uses highly sensitive electronic tubes to replace the operator's skill and judgment has been developed *(3)*. Exact thicknesses to within 0.0001 inch is claimed for the instrument which is portable and operates from any 110-volt, 60-cycle circuit.

A description of the development work, principle operation, and commercial form of the Brown moisto-graph, a moisture recording and signaling device is given by Culver *(4)*. It is based on the measurement of electrical resistivity by means of a balanced Wheatstone bridge, wherein any temporary unbalance is electronically amplified. Development work is being carried on with a view to its application to moisture control on the paper machine.

Data are given by Henk *(5)* on the characteristic fluorescence colors of undyed cellulose and of natural and synthetic textile fibers. This fluorescence can be increased by dyeing with Oxydianil yellow O. Linen can be distinguished from cotton by using hydroxyquinoline sulphate as fluorophor. Unbleached sulphite pulp dyed with Rhodamine 6 GD yields bluish-violet fluorescence, unbleached soda pulp dyed with Sulforhodamine G wine-red fluorescence, and bleached soda-pulp produces a greenish-yellow fluorescence. In ultraviolet light linen has a yellow luminescence, and cotton a violet. For the rapid analysis of textiles by these methods care must be taken to remove all traces of dyes, oils, and tanning agents. The fluorescence of various oils in direct and reflected light is discussed. Weaving defects can often be recognized more readily by using ultraviolet light.

New Papermaking Process

Fine bond and writing papers which have previously been made from cotton rags can now be made from such cotton byproducts as hull shavings and the waste from ginning, carding, and other cotton-cleaning operations, according to an announcement by E. O. Reed, of Crane & Company *(6)*.

Due to the limited supply of suitable rags for making paper, the paper manufacturers have long sought a practicable method of making paper direct from raw cotton fibers. Efforts in this direction have heretofore failed, however, because no way could be found to clean the fibers without using chemicals that weaken them and make them unfit for paper manufacture.

New Processes for Bleaching Pulp

A new process of bleaching paper pulp stock, which promises to reduce substantially the amount of chlorine needed for this important purpose, was announced at the 27th annual meeting of the Technical Association of the Pulp and Paper Industry. The new process was described in a paper presented by Fuller and Petroe *(7)*.

The basic principle of the new process is to add the chlorine to the pulp for bleaching purposes while the pulp is flowing through a piping system and is in a state of turbulence. This method of application, the inventors of the process state, insures a uniform mixture of chlorine and pulp, so that the pulp is evenly treated and the chlorine is used with maxi-

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* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

TAPPI Graphic Arts Committee Report.

[1] Member TAPPI; Chairman, TAPPI Graphic Arts Committee; Technical Director, Government Printing Office, Washington, D. C.

mum efficiency. In processes now in common use, some of the chlorine is generally wasted.

A bleach for paper developed by Carter *(8)* over fifteen years ago is being retested in the hope that it will prove a remedy for some of the papermaking problems created by the chlorine shortage. Carter was working on the effects of soluble silicates in hypochlorite bleach for fabrics in 1926 when he discovered that sulphite paper pulp came up whiter and stronger when he added his company's product to the bleaching compound. He wrote a treatise on the subject and advocated pilot plant experiments. However, according to the account, the whole experiment was forgotten until recently when papermakers, having had chlorine quotas cut, began seeking new bleaching agents and someone remembered the findings of Carter and suggested to the Philadelphia Quartz Co. that the process be reviewed. Several large paper mills are now mixing the silicate with their regular bleaching compounds in sulphite pulp. According to reports received they are getting good results and savings in chlorine are said to run from 15 to 40%.

It is claimed *(9)* that a new method for bleaching rag stock, used for high-grade writing papers, improves the quality of the finished paper.

A mixture of sodium chlorite and hypochlorite is used. The new process is carried out in the same way with the same equipment as the older process, and it is claimed that the finished paper is both stronger and whiter. In some applications chlorine savings amounted to as much as 50%.

Plastics in the Paper Industry

Severe shortages of critical materials such as bronze, Monel metal, stainless steel, copper, and rubber are interfering with plant maintenance. Hunsicker *(10)* discusses Micarta a laminated phenol-formaldehyde plastic of high strength and durability which has proved itself in many applications in pulp, paper, and paperboard mills and can do many other jobs not heretofore considered. Of particular importance is its resistance to corrosion by water and chemicals abounding in pulp and paper mill processes and it may do the work of the now hard-to-get metals and rubber.

At the present time, lignin is available commercially in at least two forms *(11)*; a lignin plastic pulp which can be used for making laminated or molded products, and lignin resins in powder form for extending phenol-formaldehyde resins for laminating varnishes, molding powders, and other applications. Lignin plastic pulp can be made into a sheet on a paper machine for laminating purposes; such laminating paper can be molded in the same type of equipment as is commonly used for molding laminated phenolic impregnated paper. The resulting sheet or board incorporates high strength, low water absorption, and good electrical properties.

Synthetic resins for special purposes in papermaking have recently found general application. After a brief review of the structure of resins of technical interest, the possibilities of thermosetting resins of the bakelite type are discussed by Liander *(12)*. One of today's problems is the effort to increase the wet strength of paper, preferably by the use of urea or melamine resins. Preliminary experimental results show interesting possibilities in this respect.

New Uses of Cellulose Fiber

Some of the new uses of cellulose fiber in the form of pulp, paper, paperboard, and converted paper products are reviewed *(13)* with special reference to their substitution for tin, aluminum, rubber, and steel as packaging materials.

The War Production Board issued an urgent appeal *(14)* to the container manufacturers to concentrate all research facilities on the development of usable substitutes. While many substitutes have been developed and already are in use, the proportion of containers still made of critical materials is considerably in excess of what it should be, War Production Board said. Manufacturers and packers now using containers made of critical materials should not rely on a continued supply of such containers, it was stated.

In the chemical industry it was urged that paper and paperboard containers be used in place of containers made from critical materials.

Reference is made *(15)* to the successful development of stretchers employing heavy kraft paper in the place of canvas on the West Coast. The stretcher (developed by J. C. Geiger of San Francisco) consists of four sheets of 65-pound kraft and a cover-sheet of 75-pound waterproofed kraft. Each sheet is glued together with a one-inch overlap; the ends are stapled, leaving room to insert the carrying poles. A paper stretcher on continuous 24-hour service averages five days' use before being discarded. From 300 to 400 persons may be handled during this time. A similar stretcher for first-aid emergency purposes is made by the Jaite Paper Bag Company, St. Helens, Oregon.

Miscellaneous Developments in the Paper Industry

Reference is made by Stewart *(16)* to the possibility of replacing casein by zein in clay coatings for paper. In the past, zein coatings have been deposited out of alcoholic zein solutions. Recently, means have been discovered for producing aqueous zein dispersions by cheaper, nonalcoholic chemicals, such as rosin size, sulphonated castor oil, sulphonated tall oil, etc. The advantages of zein-clay coatings are briefly discussed and typical formulas given.

Reference is made by Riddell *(17)* to Cellofas WLD as a possible substitute for casein in coating. The product is made from cotton linters; it is a cellulosic acid prepared as a white flocculent powder which dissolves in water to form a viscous solution. The advantages and disadvantages of the substitute are briefly stated; the difference in price—Cellofas WLD is about twice as expensive as casein—can be overcome by reduced consumption. The printing tests appear to be satisfactory and the results obtained to date are technically encouraging.

A new chemical *(18)* has just been produced in production quantities which will, when applied to paper and other materials, render it resistant to fire. Paper so treated will char but not blaze when brought into contact with flame. The new substances are sulfamic acid and ammonium sulphamate, both produced by duPont.

Another development is a luminous paper *(19)* made either with a gummed or ungummed backing or in decalcomania form. This paper glows with an intense brightness in the dark. A charge of thirty minutes in the daylight or under artificial light gives this paper enough "light energy" to glow for approximately ten hours in darkness. It can be recharged indefinitely. The luminous surface is such that it can take print.

A source of alcohol *(20)* for synthetic rubber manufacture has been developed from the waste sulphite liquor of paper mills. This was perfected in the Thorold, Ontario, newsprint mill controlled by the Chicago Tribune which is sponsoring a wide-scale development of this means of producing alcohol for manufacturing synthetic rubber.

A new chemical K-121-B *(21)* when used in conjunction with lime and caustic results in considerable improvement in the removal of dyes and colors without excessive degradation of rag stock. It is also claimed that definite advantages are derived and gained by the use of K-121-B in deinking bond and ledger stock. A cleaner brighter stock is obtained by the use of caustic and K-121-B.

Another new chemical K-140 was recently introduced for deinking ground wood stocks. When K-140 is used in conjunction with caustic, the finished pulp has the color of new ground wood and the bleach demand is consequently lower.

Ink

Fluorescent Ink

Naz-Dar Co. *(22)* of Chicago, has announced a new fluorescent ink for blackout purposes, which is recommended for use with the silk screen process. It is offered in seven colors, in gallons, quart, pint, and half-pint quantities. Another new product, known as "Naz-Dar" luminous ink, will glow in darkness for several hours after exposure to light and may be reactivated by exposure to ultraviolet light. It is said to hold its luminous properties for from one to two years.

Black Light Products *(23)* of Chicago, has announced a new line of "black light" inks for printers along with roll-coating ink, silk screen ink, invisible writing ink, and invisible stamping liquid. An extensive line of fluorescent pigments for paints and enamels is also carried, together with ultraviolet lighting units for rendering the invisible inks legible in the dark. The printing inks are furnished in six colors, red, blue, orange, yellow, white, and green.

Flocking Ink

Naz-Dar Co. *(24)* of Chicago, has developed a "flocking ink" which is being used by one midwestern lithographer for ornamenting advertising novelties, geeting cards, scrap book covers, and other products. After the design has been printed fine textile fibers, such as cotton, wool, or silk are sprayed on the wet ink to produce the appearance of felt or suede fabric.

Nonscratch Ink

International Printing Ink Corp. *(25)* has announced development of a new nonscratch halftone black, designed to fill the gap caused by shortages of glycerole phthalate and phenolic resins for ink use. Sold as "holdfast-extra," it is said to have the printing qualities of the better linseed oil inks, while possessing superior nonscratch characteristics of the "holdfast" line it replaces. Both red and green shades are offered.

Quick Drying Ink

Curado *(26)* describes a method of preparing a printing ink which comprises heating a resin selected from the group consisting of phenyl substituted phenol-formaldehyde-drying-oil-modified resin, an alkyl substituted phenol-formaldehyde-drying-oil-modified resin, a phenol-formaldehyde natural resin condensation product; with drying oil to the point of incipient gelation, adding a solvent; then continuing the polymerization but preventing gelation which would otherwise occur, by further heating in the presence of said solvent for about two and one-half to three hours, at a temperature of about 190° to 210° C., and thereafter cooling and grinding with a pigment, whereby the resulting ink, when printed on metal, will dry at a temperature of 200 to 220° F. in from three to five minutes.

Water-Base News Ink

Progress of developing a water-base news ink *(27)* has been reported. It has been used on a daily newspaper for several months. The ink sets almost instantly, flows continuously, printing solid blacks with no showthrough. Special fountains and other equipment were installed and hard rollers used with this ink. It is expected that there will be a real future for water-base inks when equipment can be developed and installed to handle this type of ink.

Inkmaking Materials

Driers

Nupodex Products Co. *(28)*, Elizabeth, N. J., has announced a new line of driers sold under the name "nuolate." The new driers are described as standardized and stabilized solutions of metal salts of refined, mixed vegetable fatty acids. They are said to be effective substitutes for pure naphthenates.

A new medium which is said to replace driers and which will prevent the forming of skin or film on the ink has been developed by the Bureau of Industrial Chemical Research of Canada *(29)*. It is a cold-set ink which eliminates the necessity for using any heat devices for setting the ink, and ink containing the new medium is said to dry within fifteen to thirty seconds.

Pigments

Two new types of calcium carbonate pigments, described by Barnes *(30)*, have been developed which have excellent characteristics as extenders. The first is improved in wettability by coating the particles with organic substances. Inks made with this extender have nonpenetrating and nonsettling properties which make them especially good for printing on porous surfaces. This first type of calcium carbonate is still too coarse for finer grades of inks, but the second type has a particle size of about 0.04 micron. It is claimed that in comparison tests this finer calcium carbonate proved itself as good as, and even better in some properties than, the alumina hydrate, gloss white, and magnesium carbonate extenders. This development is particularly valuable now because of the difficulty of obtaining alumina hydrate.

Resins

Bakelite Corp. *(31)* has announced the development of BR-14590, a new and most versatile resin based on "carbic" anhydride. It is claimed that this resin will greatly accelerate the bodying and drying of "soft" oils, such as linseed, soya bean and stillingia oils, and that it will advance semidrying oils to the class of drying oils. Best results are said to be obtained when the resin and part of the oil are cooked together to 500° F. before adding the remainder of the oil and again reheating the whole mass to 500°. Vehicles prepared in this manner are said to exhibit

outstanding adhesion, color retention, durability and flexibility.

VEHICLES

Triangle Ink & Color Company *(32)* has introduced a new gloss varnish, "gloss compound," designed for use in making high gloss inks or quick drying inks. According to the manufacturer, the new varnish is being used mainly in the production of quick drying inks.

The Werner G. Smith Company, Division of the Archer-Daniels-Midland Company *(33)*, has announced the production of a new, fast-drying oil known as "celesterol." This product is produced by selective segregation of the faster drying portions of high-grade sardine oils and contains, as a major ingredient, clupanodonic acid triglyceride, having a theoretical iodine value of 365. This extreme unsaturation provides for great reactivity with synthetic resins, particularly the modified phenolics, and also insures very fast bodying in the varnish kettle. "Celesterol" will form a string when cooked at 540° F. for 25 minutes and will gel in 25 minutes, if held at a temperature of 580° for this time. It is gasproofed as delivered and since it is furnished in a body of Z-6 to Z-7 it may be used directly as a printing ink vehicle.

Archer-Daniels *(34)* has announced availability of several new treated linseed oils which promise to find wide application in the printing ink and varnish industries. The first of these is "trimol V-14" which at present is offered only with relatively high priority ratings. This is a linseed-base oil processed to gel in 1 hour at 540° F. Because of its rapid bodying characteristic and correspondingly fast dry, this oil produces varnishes which duplicate very closely chinawood oil—ester gum cooks. The resistance properties of "trimol V-14" are very similar to those of dehydrated castor oil—with the after-tack eliminated. The overnight hardness of varnishes made with "trimol V-14" is much improved over similar varnishes made with dehydrated castor oil.

Trimol P-15, the second of the new oils, provides a suitable replacement for perilla oil, which is at present practically unobtainable. This oil is light in color and has unusually good kettling properties. It heat bleaches similar to perilla and bodies faster than either perilla or linseed oils. Tests have shown that "trimol P-15" performs to best advantage when it is prebodied before heating with resins. In this way the color of the finished varnish is improved, as well as the chemical resistance and drying properties.

"Diadmerol T-85" is the third of the treated linseed oils. This is a heavy bodied oil which is finding considerable application as a chinawood oil substitute. It is darker in color than either the V-14 or the P-15, but this is in part compensated for by its higher initial viscosity. In combination with resins, this oil should yield interesting high viscosity lithographic varnishes.

Spencer Kellogg & Sons, Inc. *(35)* have just announced the commercial production of Solinox, a hydroxylated linseed oil which they claim is a satisfactory substitute for castor oil for industrial applications. The oil is very soluble in alcohol and has an acetyl value of approximately 90 (the acetyl value of C.P. castor oil ranges from 130 to 140). Solinox has a Gardner-Holdt viscosity of "T," which is the same as C.P. castor oil. A heavier-bodied solinox is also available which has a viscosity of "Z," or is equal to pale blown castor oil. The materials are suitable for use as lacquer plasticizers and printing ink ingredients.

ANTISETOFF SPRAY

Craig Corp. *(36)* recently announced the Craig "dri-spray," a new device for spraying dry powder to prevent offsetting and sticking. The spray material consists of a powder mixed with liquid which is delivered in atomized form, creating a mist or fog which flows over the press. However, it is pointed out that since the material has a relatively high specific gravity it can be controlled and doesn't flow throughout the entire plant. It has been approved, according to the manufacturer, by the International Printing Pressmen and Assistants Union of North America and the New York Employing Printers Association.

Photoengraving

DROP-OUT PROCESS

A new process for automatically removing all screen tone dots from white areas of the halftone reproduction of any original drawing or photo has been developed by A. L. Huttkay *(37)*. It is claimed that where it may otherwise take a man six to eight hours to drop out whites by hand, this automatic process takes two hours with far superior results. The procedure: The original is received from the store and an ordinary square halftone (negative) is made. With a special developer, a drop-out mask is made. Then the negative goes through another process which completes the drop-out process automatically. After they have dried, the halftone and the automatic drop-out mask are put into register. From these combined negatives a contact print is made void of dots in the white areas. This print is sent to the engraver who makes a line cut although the finished ad closely resembles a wash drawing.

DENSITOMETER

Agfa-Ansco has announced the Ansco-Sweet densitometer, a new instrument for measuring photographic density, which has been developed by Monroe H. Sweet *(38)* of the company's research laboratories. The basic feature of the new densitometer is in the use of a photosensitive tube which, when placed in the path of a beam of light, varies the flow of an electric current in proportion to the intensity of the light. This current, after amplification, actuates meter which is calibrated directly in terms of density.

DEVELOPERS

Because of the scarcity of hydroquinine, Willock *(39)* stated that it is necessary to find other types of materials to use in developers. Amidol is suggested for high-speed work. Paraminophenol gives reasonable contrast and may be speeded up by the addition of a little metol. Metol alone may be used for all-round negative work. Suggestions are given for increasing the life of the metol-hydroquinone developers that are available. Formulas and development times are given for the developers discussed above. Various commercial developers are also discussed. Potassium salts are almost unobtainable but may be replaced by the corresponding sodium salts.

MULTICOLOR PROCESS

A multicolor process is described *(40)* using a new type of "craftint doubletone drawing board," which is made with both dots and lines. Dots, lines, and solids can be made on the same sheet. The solids are painted in with black waterproof ink. Two different developers are furnished, one of which brings

out the dots and the other the lines. Different sheets are provided with different screen angles 30 degrees apart for color work.

Polyvinyl Acetate to Replace Photographic Gelatine

Two related specifications *(41)* propose the use of polyvinyl acetate or polyvinyl protective colloids to replace gelatine in photographic silver-halide emulsions. This, the specifications in part point out, is owing to its ability to hold the silvery halides in suspension, to its good water permeability, its insolubility in water and in photographic developing solutions at ordinary temperatures, and its ability to form a satisfactory coating upon a support. An additional essential requirement of a colloid for the purpose is that it must be such a material that the silver halide when formed does not appreciably clump or coagulate.

Stop-Bath and Fixing Bath Formulas

In view of the requisition of many chemicals for defense, it has become impossible to secure some essential photographic chemicals. An investigation has been made, therefore, by the Kodak Research Laboratories *(42)* with a view to making available a choice of chemicals to replace those ordinarily used in stop and fixing baths. Formulas for these baths and methods for their revival are given. The materials which may be used as a substitute for acetic acid are listed in order of their preference:

For stop baths:
(1) vinegar (white)
(2) sodium acetate with sodium acid sulphate
(3) sodium bisulphite, and
(4) citric acid.

For fixing baths:
(1) vinegar (white)
(2) sodium acetate and sodium acid sulphate, and
(3) sodium bisulphite.

Electrotyping

Saving Tin in Electrotyping

Order M-43-A of the War Production Board restricts the use of tin foil containing 35% tin and 65% lead for electrotype backing. Two substitute foils containing silver, bismuth, and antimony in partial replacement of tin were tried out by the United States Government Printing Office and gave very satisfactory results. The composition of one was 15% tin, 1.5% silver, 5% bismuth, 0.5% antimony, and the remainder lead. The other foil had a composition of 15% tin, 1.25% silver, 0.5% bismuth, 0.5% antimony, and the remainder lead. The thickness of this foil is 0.0015 inch whereas the former foil was 0.002 inch thick. About 70% saving of tin has, therefore, been effected by substituting this 15% tin foil for the 35% tin foil formerly used.

Iron Practical Substitute for Nickel and Copper

Studies on the substitution of iron for nickel and copper in printing plates in an attempt to overcome a shortage in these metals because of increased military demands have been successfully conducted by the United States Government Printing Office *(43)* in cooperation with the National Bureau of Standards.

The studies showed that:

(1) Iron can entirely replace nickel in plating on stereotypes.
(2) Iron can entirely replace nickel in plating on copper electrotypes.
(3) Iron can be used to replace a part of nickel in true nickel electrotypes on wax or lead molds. This is accomplished by depositing successive layers of nickel, iron, nickel, and copper. About two thirds of the nickel and one third of the copper are thereby saved, and plates thus processed have yielded better service than the normal nickel electrotype.
(4) Iron can be used to replace all of the nickel on lead and wax molds.
(5) By using the maximum practicable thickness of iron on lead or wax molds, all of the nickel and at least one third of the copper may be replaced.

Electrotype Substitute Wax

A new product "ozotex" *(44)* is replacing the imported molding wax called "ozokerite." Extensive research has found the new all-American product. It never varies in quality, consistency, and the melting point runs true. Neither does it crack or break when chilled, and is quite stable.

Lithography

Substitutes for Albumin

Casein is suggested by Hallam and Haigh *(45)* as a substitute for albumin. A formula is given of 100 grams (6 oz.) casein; 1 350 ml. (80 oz.) water; 15 ml. (7 drams) liquid ammonia 880°; and 150 ml (9 oz.) ammonium bichromate, 20% solution. The casein dissolves fairly readily in water upon the addition of ammonia, but the solution may be heated to 160° F. if more speed is necessary. A whirler speed of 120 r.p.m. may be used. A trace of ammonia or a weak solution of carbonate of soda in the water will aid in development.

Working directions for the use of V-Coat, a new synthetic replacement for egg albumin, are given by Harris-Seybold-Potter Co. *(46)*. Formulas employing the new coating for zinc or aluminum plates are included, along with instructions for their application.

Plate Cleaner

The Litho Plate Cleaning Company *(47)* has announced the development of "Clean-O" a new cleaning fluid for lithographic plates. The new cleaner is said to remove the image without affecting the grain and to enable the use of a plate from 10 to 25 times without regraining.

Furfuryl Alcohol

Furfuryl alcohol is recommended by Robert F. Reed and Anthony George *(48)* as a substitute for anhydrous ethyl alcohol in the deep-etch process. Directions for its use are given. Although the price per gallon of furfuryl alcohol is higher than that of anhydrous ethyl alcohol, the amount necessary is much less and the cost per plate may be reduced.

Silvalith Plates

A description is given by Fishenden *(49)* of the new "silvalith" plates developed by the L. C. C. School of Photo-Engraving and Lithography, the Printing and Allied Trades Research Association, and Kodak, Ltd., (as reported in PATRA Information Leaflet No. 22 and Kodak, Ltd. Data Sheet.) D.8. "Silvalith" plates are grained zinc plates coated with a thin layer of silver bromide emulsion which is soluble in hot water. After exposure the plate is developed in a tanning developer and then the untanned gelatine is washed away with hot water. Details of procedure are given for both the normal process (where a positive is obtained from a positive) and the reversal process (a positive from a negative). The merits of the process are:

(1) the speed with which plates can be made without the use of whirler, arc lamps, etc.;
(2) the original can be photographed direct on to the zinc litho plate by a projection method in the camera without the need of an intermediate negative; and,
(3) the processing technique is similar to that already used for reversal plates.

Plastic Lithographic Plates

A very convincing demonstration of the practical use of the new plastic-paper litho plates manufactured

by the Plastolith Company, of Boston, was presented by the coinventors, Ellis Bassist and Craig Toland *(50)*.

The plate itself is made of a special paper, coated on both sides with plastic chemicals, which according to the inventors gives a surface closely resembling the original litho stones.

Coating can be done either by hand or in a whirler and regular lithographic coatings or the one especially made for the plate can be used with equal results.

Development is completed in the usual way and the plate rolled up according to standard lithographic practice. It is suggested by the manufacturers that the fountain etch regularly used be cut in strength by about one-half, when the plate is put on the press.

In a recent statement by War Production Board officials in Washington, the new plate was highly praised as a metal substitute.

Two new plastic lithographic plates, "Lithomat" and "Photomat," have recently been introduced *(51)*.

The "photomat" is made up of a strong plastic mat, impregnated with synthetic resins and colloidal chemicals. It can be sensitized with certain chemical solutions, and will receive photographic images. The mat has the appearance of a heavily coated tympan paper, and is manufactured in rolls up to 52 inches wide. It is flexible in its use, in that it can be handled without fear of spoilage by light up to the time it is sensitized.

The "lithomat" is being used for forms, reports, facsimile reproductions, and line drawings which can be copied directly on to the surface of the mat. It is flexible and is as easy to handle as a sheet of index bristol. As it is translucent one can easily trace copy through the mat. It can be easily stored and reused.

Sensitizing is accomplished by immersion in a bath solution and then dried. The original copy is photographed, the negative placed over the plate in a vacuum frame and exposed for the required time before the carbon arc lamps. The mat is then rubbed up with a special developing ink, and afterwards washed out in water to remove the developing ink except where it remains in the image or exposed portion of the mat which later attracts the printing ink. From here on the standard developing procedure as used in albumen coated metal plates is followed.

Culminating several months of experimentation a new plastic plate has evolved from the laboratory of Litho Chemical & Supply Company *(52)*, New York, known as "K-tin plastic photo offset plate".

The plate itself is transparent, carrying a grain similar to the 00 grain of a zinc plate".

No counteretch or pre-etch is used. The plate is merely dampened with water then coated in a whirler using a coating solution developed by the inventors.

After the plate has dried in the whirler, which operation may be speeded up by use of a warm air blower, it is printed in contact with a negative in a vacuum frame.

Exposure time is approximately the same as when using an egg albumen solution.

After exposure, developing ink, also of a special nature, is applied, rubbed to a thin even film until dry.

The plate is then developed in a warm bath. Development is free and sharp.

No etch is employed after development. A coating of gum arabic is advisable at this stage but only to protect the plate against fingerprints, or contact with ink while being positioned at the press.

Before starting the press the gum solution is sponged off, the dampening rollers dropped for a few revolutions and then the ink rollers dropped into position.

A special but inexpensive fountain solution is used at the press.

The inventor, Thos. R. Caton, president of Litho Chemical & Supply Co., stated that the plates will be available in all sizes for Multilith, Davidson, Webendorfer, Rutherford, and Harris presses up to 19¾ x 23 inches.

It is claimed that the plate can be chemically regrained in the user's own plant by applying a special chemical solution with a brush and rinsing the plate in water.

Plastic Plates for Letterpress Printing

There was continued development of the manufacture and use of flat letterpress printing plates made from plastic resins during 1942. This was of considerable proportions in the production of 0.065 inch thick plastic duplicates of halftone and line newspaper illustrations for the use of the United States government. Promising progress has been made in the making of standard flat 11 point (0.152 inch thick) printing plates for press runs from 35,000 to considerably higher number of impressions and on advertising plates of 0.105 inch thickness. The light weight of plastic resin plates favors their use where transportation costs are a factor.

The production technique uses phenolic type thermosetting plastic resin materials, molded from the type form or pattern as a matrix. From this matrix several flat printing plates can be made using various thermoplastic resin material such as vinylite, cellulose acetate, and cellulose acetate butyrate resin.

The Bakelite Corporation *(53)* announced a new process for making plastic printing plates. The process described consists in making thermoplastic plates of vinylite plastic from thermosetting bakelite matrices. Reproduction of 60-line to 175-line halftones have been made successfully with minimum shrinkage, without measurable loss in depth, according to the announcement.

Silk Screen

Offset Gravure *(54)* of Chicago, Ill., has announced development of a new silk screen method which, it is claimed, permits the nearest approach to lithography ever attained in this reproduction process.

Chromatic Screen

Marx *(55)* describes the chromatic screen which is a new halftone screen which makes line and highlight halftone exposure simultaneously on a single negative and eliminates much of the stripping, masking, and opaquing of negatives. The lines of the screen are made of a dark red material which is transparent to ultraviolet light. The copy is prepared with fluorographic materials which absorb ultraviolet light. The background and highlights, however, reflect the ultraviolet light, which goes through the screen, accomplishing high-lighting without the necessity of removing the screen.

Wetting Agents

Wettsall Company *(56)*, Boston, has announced a new product, known as Wettsall L-10, which is said to have various applications in the lithographic process. Packed in powder form, Wettsall L-10 is dissolved in water and added to aqueous working solutions, acting as a wetting, penetrating, and dispersing agent and aiding the various chemicals to function faster and more thoroughly. It may be used for negative developing, plate cleaning, albumen or deep-etch coatings, gum, and in the water fountain to reduce the amount of water run to plate and provide more even distribution of water. According to the company, Wettsall L-10 is nontoxic and harmless to skin, metal, or working apparatus.

Fotocolor Laboratories *(57)*, New York, have placed on the market a new wetting agent for photographic solutions known as "Wondrop." The new agent is said to require only one drop per 8 ounces of developer, hypo, rinse, or other solution, rather than the usual 10:1 to 200:1 dilution. The advantages of "Wondrop," according to the manufacturer, are that it causes quick and even penetration of solutions, reduces drying time of films, prevents drying spots and makes tints, opaques, and retouching colors flow on more evenly.

Bookbinding

Binding Wire

With binding wire becoming an increasingly scarce material, considerable experimentation is being conducted to conserve or eliminate binding wire. The Government Printing Office has led in these experiments and has effected a general overall saving amounting to two thirds of the quantity of binding wire formerly used.

The savings there were the result of reducing the number of wire stitches from two to one wherever possible—and by a reduction in the weight of the stitching wire. Stitching is not used at all when paste can be satisfactorily substituted.

Fiber Replaces Metal for Binding

Interesting developments in loose-leaf devices made of vulcanized fiber have been described *(58)*. There are several different products produced by at least three different concerns most of which are 100% nonmetallic for ring books, check books, school composition books, record albums, and fasteners for the stationery trade.

Plastic Mechanical Binding

Tauber Tube Binding *(59)*, New York, announced the development of a new plastic mechanical binding by the name of "Tauber twist." It is available in four colors—red, white, blue, and crystal, and in diameters from 3/16 inch through 1 inch. "Tauber twist" coils will be supplied, with the spacing between the coils registered to fit the holes produced by multiple punching or drilling in any shop.

Committee on Critical Metals

To facilitate the procurement of metals not needed for war purposes, a National Committee on Critical Metals for the graphic arts industries has been formed.

The purpose of the committee will be to work out ways and means of best utilizing the available critical metals; to seek out substitute materials, methods, and practices, and to report these to members of the industry; to encourage compliance with all War Production Board orders, and to contact the Printing and Publishing Bureau of the War Production Board on all matters concerning critical materials.

Graphic Arts Emergency Council

A Graphic Arts Emergency Council *(60)*, made up of management and labor, was formed:

1. To give the fullest measure of cooperation to the Government in its prosecution of the war.
2. To give the fullest support to the proper and essential allocation of materials and things necessary to the graphic arts industry and its allied industries.
3. To make available the influence, leadership, and unity essential to the processes of rehabilitation after the war.
4. To preserve and protect the graphic arts industry as an essential part of the economic structure of our nation.

Literature Cited

1. Sears, George R., and Kregel, Evelyn A., "Application of the electron microscope to problems of the pulp and paperboard industry." *Paper Trade J.* 114, No. 12: 43-9 (March 19, 1942).
2. Davis, H. L., and Rynkiewicz, H. J., "A fiber identification stain." *Ind. Eng. Chem., Anal. Ed.* 14, No. 6: 472 (June, 1942).
3. "Electronic paper thickness tester." Share Your Knowledge Review 23, No. 11: 11 (Sept., 1942).
4. Culver, D. C., "Measurement of moisture in paper (on the paper machine) by the resistance method." *Paper Ind.* 23: 555-61 (1941); *Modern Lithography* 10, No. 2: 71-2 (Feb., 1942).
5. Henk, Hans Joachim, "The fluorescence of fibers and textile assistants in ultra violet light." *C. A.* 35, No. 7: 2331 (April 10, 1941); B.I.P.C. 12, No. 6: 181 (Feb., 1942).
6. "New paper making process uses lowest grade of cotton fiber." *Paper Progress* (Jan. 1942).
7. Fuller, R. R. and Petroe, G. A., "Methods of automatically controlling the chlorine supply in bleaching." *Tech. Assoc. Papers* 25: 422-426 (1942).
8. Carter, John D., "Report new bleach for paper." *Modern Lithography* 10, No. 3:57 (March 1942).
9. "For bleaching rag stock." Share Your Knowledge Review 24, No. 1: 33 (Nov. 1942).
10. Hunsicker, F. P., "Laminated plastic one answer to shortage of critical metals." *Paper Trade J.* 115, No. 12: 41-4 (Sept. 17, 1942).
11. "Lignin plastics development." *Modern Plastics* 19 No. 9: 46-7 (May 1942).
12. Liander, Halvard, "Synthetic resins in the paper industry." *Svensk Papperstidn.* 44 No. 21: 481-5 (Nov. 15, 1941).
13. "Paper for war and substitute uses." *Paper Mill* 65, No. 43 (Oct. 24, 1942). B.I.P.C. 13, No. 3: 110 (Nov. 1942).
14. "Substitute containers." *Paper Mill* 65, No. 42: 12 (Oct. 17, 1942).
15. "Paper stretchers prove successful substitute for canvas." *Pacific Pulp Paper Ind.* 16, No. 10: 3-5 (Oct. 1942).
16. Stewart, C. W., "A new adhesive for paper clay coatings." *Pulp Paper Mag. Canada* 43, No. 4: 333 (March 1942).
17. Riddell, G. L., "A possible substitute for casein in coated papers. *Proc. Tech. Sect., Paper Makers' Assoc. Gt. Brit. Ireland* 22: 189-90 (Dec. 1941).
18. "Fire resistant paper." *Paper Progress* (Dec. 1941).
19. "Development of substitute." The Graphic Arts Monthly 14, No. 11: 66 (Nov. 1942).
20. "Alcohol from paper mill waste." Share Your Knowledge Review 24, No. 1: 33 (Nov. 1942); *Converter* (Oct. 1942; p. 21).
21. "A new chemical K-121-B." *Paper Trade J.* 115, No. 6: 18 (Aug. 1942).
22. "New fluorescent ink." *Am. Ink Maker* 20, No. 4: 39 (April 1942).
23. "To market fluorescent inks." *Am. Ink Maker* 20, No. 11: 41 (Nov. 1942).
24. *Am. Ink Maker* 20, No. 4: 30 (April 1942).
25. "New I P I nonscratch ink." *Am. Ink Maker* 20, No. 6: 36 (June 1942).
26. Curado, Joseph G., "Quick drying printing ink and method of preparation." U. S. pat. No. 2,252,917 (Aug. 19, 1941); *Modern Lithography* 9, No. 12: 63 (Dec. 1941).
27. "Water base news ink." Share Your Knowledge Review 23, No. 12: 15 (Oct. 1942).
28. "Nuodex offers nuolate driers." *Am. Ink Maker* 20, No. 6: 37 (June 1942).
29. "What's new in the Graphic Arts." *Inland Printer* (Nov. 1942, p. 70).
30. Barnes, Donald S., "New calcium carbonate pigments." *Am. Ink Maker* 19, No. 11; 35, 37 (Nov. 1941); *Modern Lithography* 10, No. 1: 63 (Jan. 1942).
31. "New bakelite resin." *Am. Ink Maker* 20, No. 1: 34 (Jan. 1942).
32. "New triangle gloss varnish." *Am. Ink Maker* 20, No. 5: 43 (May 1942).
33. "New synthetic drying oil." *Am. Ink Maker* 20, No. 2: 37 (Feb. 1942).
34. "New treated linseed oils." *Am. Ink Maker* 20, No. 9: 81 (Sept. 1942).
35. "Castor oil substitute." *Am. Ink Maker* 20, No. 12: 33 (Dec. 1942).
36. "New spray device." *Modern Lithography* 10, No. 7: 55 (July 1942).
37. "Automatic drop-out process." *Editor and Publisher* May 9, 1942, p. 32; *Modern Lithography* 10, No. 8: 61 (Aug. 1942).
38. "New Agfa densitometer." *Modern Lithography* 10, No. 8: 51 (Aug. 1942).

39. Willcock, Richard B., "Emergency developers." *British J. Photography* 89, No. 4281: 192-3 (May 22, 1942); *National Lithographer* 49, No. 8: 60 (Aug. 1942).
40. "New multicolor process." *Photo-Engravers' Bull* 32, No. 2: 65-6 (Sept. 1942); *Lithographers J.* 27, No. 8: 387 (Nov. 1942).
41. "Polyvinyl acetate to replace photographic gelatine." *Process Engravers' Monthly* 49, No. 583: 194 (July 1942).
42. Crabtree, J. I., Muehler, L. E., Russell, H. D., "New stop-bath and fixing bath formulas and methods for their revival." *Am. Photography* 36, No. 4: 28-30, No. 5: 12-14 (April-May 1942); *Modern Lithography* 10, No. 6: 69 (June 1942).
43. "Substitution of iron for nickel and copper in printing plates." *Electrotypers and Stereotypers Bulletin* (April 1942). Technical Bulletin No. 7 International Association of Electrotypers and Stereotypers. Share Your Knowledge Review 23, No. 10: 9 (Aug. 1942).
44. "New electro wax." Electrotypers and Stereotypers Bulletin Feb. 1942, p. 30; Share Your Knowledge Review 23, No. 6: 16 (April 1942).
45. Hallam, C. D., Haigh, A., "A good substitute for albumen." *Process Engravers' Monthly* 49, No. 583: 180 (July 1942); *Lithographers J.* 27, No. 7: 337 (Oct. 1942).
46. "Describes synthetic coating." *Modern Lithography* 10, No. 8: 53 (Aug. 1942).
47. "Develop new plate cleaner." *Modern Lithography* 10, No. 1: 53 (Jan. 1942).
48. Reed, Robert F.; George, Anthony, "Furfuryl alcohol in deep-etch platemaking." Supplement No. 3 to Research Bulletin No. 9. Lithographic Technical Foundation. *Modern Lithography* 10, No. 4: 67 (April 1942).
49. Fishenden, R. B., Silvalith. *Modern Lithographic Offset Printer* 38, No. 4: 38-9 (April 1942); *National Lithographer* 49, No. 8: 60 (Aug. 1942).
50. "New England makes paper plates. More about plastic plates." *National Lithographer* 49, No. 11: 34, 46 (Nov. 1942).
51. "Plastic litho-plates." Share Your Knowledge Review 23, No. 7: 7 (May 1942).
52. "Plastic offset-litho plate." *Printing Equipment Engineer* (Nov. 1942) p. 17.
53. "Plastic printing plates." *Printing Equipment Engineer* (Aug. 1942, p. 13); Share Your Knowledge Review 23, No. 11: 13 (Sept. 1942).
54. "Silk screen approaches litho." *Modern Lithography* 10, No. 9: 53 (Sept. 1942).
55. Marx, Jr., Walter S., "Chromatic screen." *Printing Equipment Engineer* 63, No. 5: 14-16 (Feb. 1942); *National Lithographer* 49, No. 3: 17-18, 20 (March 1942); *Lithographers J.* 26, No. 14: 89 (May 1942).
56. "Announce new wetting agent." *Modern Lithography* 9, No. 12: 51 (Dec. 1941); *National Lithographer* 49, No. 3: 68 (March 1942).
57. "Announce new wetting agent." *Modern Lithography* 10, No. 1: 51 (Jan. 1942).
58. "Fiber replaces metals." *Bookbinding and Book Production* 26, No. 4: 43 (Oct. 1942); Share Your Knowledge Review, 24, No. 1: 36 (Nov. 1942).
59. "Introduces new binding." *Modern Lithography* 10, No. 7: 55 (July 1942).
60. "Four graphic arts emergency group." *Inland Printer* 109, No. 2: 27-30 (May 1942); Share Your Knowledge Review, 23, No. 8: 12 (June 1942).

Application and Maintenance of Pumping Equipment Associated with Water Treating Equipment*

By A. T. Nielsen[1]

Abstract

The pumping equipment associated with water treatment comprises the major portion of the moving apparatus and supplies the motive force for the movement of the water and chemicals.

The initial step in the proper application of such machinery is a correct and completely worded inquiry. The necessary information for the preparation of a proper bid by pump builder is delineated.

The second step is the weighing of the individual bids; in this connection the various features of pump construction and performance are indicated with their effects upon operation and life.

The last step is proper installation. The correct procedure is outlined with special stress on often neglected features.

After a properly applied pump has been purchased, its usefulness and life lies in the hands of the operator and the maintenance department. Suggestions for the operator are outlined and proper maintenance procedure is discussed in detail.

The treatment of water for industrial and domestic usage has grown to be an exact science with all concerned accurately acquainted with methods and materials in general usage. It is remarkable the degree of purity that may be obtained in treated water and the degree of accuracy with which water may be conditioned for various services.

The various systems and apparatus used impose a wider variety of conditions of service on the pumping equipment than is normally found in any single industry. This portion of the equipment is rather insignificant in both bulk and cost; however, it constitutes the majority of the equipment which is power driven, and since it is the medium by which the water is moved through the whole apparatus, it constitutes a portion of the equipment whose importance far outweighs its proportionate bulk or cost.

Specifications

One of the most important places where we can well spend time in insuring proper equipment application is to make sure that the manufacturer of the pumping equipment is furnished with all of the information required for him to make his selection. This is generally more than any mere statement requesting quotation on equipment for a stated head and capacity, indeed manufacturers have upon occasion made misapplication of pumping equipment to water treatment systems when all of the conditions involved were not fully known and understood.

In order that a clear-cut selection of hydraulic equipment may be made the following is the minimum data required:

No. 1 Type of service (describe fully).
No. 2 Fittings required (ask manufacturer to recommend fittings for unusual liquids, see item 6).
No. 3 Capacity (g.p.m. at pumping temperature).
No. 4 Total Dynamic Head (fixed or varying and what range, friction and static components).
No. 5 Suction Conditions, Static Head, Friction Head, Suction Lift or Head. Vapor pressure and all factors determining net positive suction head.
No. 6 Liquid Pumped—Full Characteristics, Viscosity, Specific Gravity, Corrosive or Acid Nature, Size Solids, if any. Describe any unusual liquid.
No. 7 Driver Characteristics. Shall driver be quoted? If Motor: state cycle, voltage available and type desired. If Turbine: state steam conditions, pressure, total temperature, back pressure. If Belt: Is same permissible, with which of above.
(Note: If conditions of service are ever to change, belt drive often most economic drive.)

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This is the minimum data the manufacturer must be supplied in order that pumping equipment may be supplied without any chance of error or misapplication due to misunderstanding of the conditions of service. When complete data as outlined above are in the manufacturer's hands, proper equipment application then becomes a clear-cut matter and potential trouble completely eliminated. These data are required because often the temperature or size of solids in suspension or similar matters drastically effect the type and style of equipment offered.

Selection of Pump

The above may seem extremely elemental, however, it is indeed surprising the casual manner of so many inquiries in these days and the difficulty in developing full information before equipment offerings.

After all quotations on a particular application are received the matter of selection is at hand. It might be well to highlight the decision and points that must be balanced one against the other in this, the vital matter of selection.

The purchase of correctly selected pumping equipment is the best assurance of a minimum of outages and repairs. In this connection extremely large and slow-speed equipment is not as is often believed the most reliable or the most economical. In many cases smaller and higher speed units require smaller horsepower drivers and less input horsepower. While in some cases various parts of smaller higher speed machines may wear out more rapidly than in the larger machines, the replacement cost of the parts in the two cases may often show the smaller machine more economical in spite of this greater frequency of replacement.

Efficiency

Care must be exercised not to select equipment that depends upon extremely close clearances. Such units with fine fits are excellent for clear water and oil usage but should be avoided for process work as the fits cannot be depended upon to remain without wear. At this point it might be well to discuss the matter of efficiency. Most process pumps have had efficiency relegated to a secondary consideration during design in order that such points as longevity and foolproof construction might be stressed. Where process pumps are handling liquids which are to be heated or their heat content used elsewhere, the reason for considering efficiency disappears, because the difference between the applied horsepower and the water horsepower output appears as sensible heat in the liquid pumped and is therefore useful. In the selection of such a pump this act should not be influenced by consideration of efficiency—this, however, tempered by the realization that grossly inefficient units reflect poor design, and high maintenance; and frequent repairs may be expected due to hydraulic shock, eddies, and other effect. After a unit has been applied in service and properly installed its life expectancy is entirely one of maintenance.

Preventive Maintenance and Repairs

The keystone of all maintenance work is good housekeeping and hand in hand with this goes maintenance routine. Under clean well lighted conditions and a frequent inspection service, small difficulties often only require a few moments time for adjustment, and are discovered before they become costly and troublesome repairs. This results in a saving of repair parts and a saving in materials so vital today. Frequent oiling, inspection, and repacking of pumping equipment pays dividends in locating operational faults before they have proceeded beyond the point where adjustments or "on the spot" maintenance will correct the faults. It is unfortunate that neglected equipment has no voice. Such neglected equipment can only signal this neglect by partial or complete inoperativeness.

There is no priority in maintenance. Equipment life is in the hands of the man in whose care it rests. It is important that he thoroughly understands the construction, function, and correct adjustment of such pieces as he is delegated to husband. The day of the mechanic who depended on a ball-peen hammer and a roll of bailing wire has retired to that dark limbo it deserves. The real maintenance man today rather, is the chap who has adapted the micrometer and dial gages of the machinist to his trade, the man who looks upon his work not as so many cantankerous pieces of machinery to struggle along with during his shift, but rather views the equipment as his special wards whose health and well-being are in his hands. This attitude is not in general inherent, because such mechanics do not have an overall view of maintenance problems.

It is the problem of management to develop this viewpoint.

Many operational difficulties are peculiar to the paper industry, and several of these will be enumerated with respect to clarifying the methods of overcoming them. One of the most prevalent of these is trouble due to centrifugal pumps not producing rated head and capacity, and yet upon examination reveal no apparent reason for the drop off. This may often be caused by a large clog of solid material, stick of wood, or similar article which lodges in the impeller and effectively reduces the diameter, of the impeller eye and therefore the capacity. When the unit is shut down the liquid in the discharge line washes the obstruction out of the impeller and it disappears from view in the suction line or back to the suction source, so that when the pump is dismantled the offending material is not discovered. Quite properly therefore the suction valve on the pump should be throttled and completely closed while the pump is still running thereby maintaining a flow through the pump right up to the last moment at which time the pump may be shut down and the offending material will then be discovered and removed.

Installation

A common installation fault will be found where solid materials are added to the vessels from which the pump takes its suction. In the event that proper diffusion plates or other means of obtaining immediate uniform distribution of the added material are not supplied often large clogs or high concentration of the additive will be found to have a serious effect on the capacity or stopping the delivery of liquid completely. It is also to be noted that these highly concentrated "slugs" of material mean increased wear on the various interior parts of the pump. They can also cause the pump to "bind" and thereby create driver overloads which in time may mean failure of the driver.

The pumping equipment associated with water

treatment apparatus may be divided into groups, namely, those handling pure water and those handling raw water, chemicals, and other contaminated materials. The maintenance methods applied may also be so divided. The maintenance methods as applied to pumping equipment handling clear water, are in general well understood and are quite completely covered by the information published by the various pumping equipment manufacturers, and consists after proper installation, periodic checkup of the various well known and well understood maintenance points. The maintenance requirements of those units handling unclear or contaminated liquids, or those containing chemicals and treatment materials is not quite so well understood or appreciated. These units, such as the chemical feed pump, chemical mixing pump, sludge recirculating pump, and others, require upon installation a slightly different treatment. Initially, the most important thing that can be done to prolong the useful life of these units is to supply independent clear sealing medium, (generally water) to the stuffing box at a pressure somewhat above (5 to 15 pounds) suction pressure, thereby assuring a clear lubricating medium between the packing and the shaft or shaft sleeves. This point cannot be too highly stressed inasmuch as packing maintenance probably constitutes 50% of the money expended on the average pump maintenance and the aforementioned method of handling can very materially increase the life of both packing and metallic stuffing box parts. Although a centrifugal pump stuffing box takes no load in a radial direction, performance can be likened to that of a sleeve bearing, and the same postulate of life and proper handling may apply. The nearer we approach keeping a stuffing box clean, cool and lubricated, the more perfect its operation will be. Carrying forth the analogy no sleeve bearing can operate correctly in the event it has any eccentricity. All shafts or shaft sleeves in stuffing boxes should be checked for concentricity and in the event any eccentricity is found, this same should be corrected. In order that this may be properly corrected, the entire rotating element of the unit should be mounted in the lathe with the bearing fits upon which the element rotates as the centering points and the shaft or shaft sleeves trued up wherever the packing contacts it.

In this manner, true concentricity, when the unit is reassembled is at once established. When reassembled, no unit, be it a clear water or a contaminated water pump should be so run that no leakage from its box takes place. Water is an excellent lubricant when it is cold and constantly replaced; it is therefore, evident that leakage should take place from the gland and no pump should be run that tight that this leakage is not in evidence. On an average anywhere from 10 to 60 drops per minute of water leakage at the gland should be evident.

All modern centrifugal pumps are equipped with drains from under the stuffing box, and for good housekeeping purposes these same should be piped to a sewer. This point should be stressed since far too many operators have a mistaken idea as to neatness and housekeeping around pumping equipment, and insist that they run centrifugal pump stuffing boxes so tight that no leakage ensues. This may appear very neat momentarily, however, in the long run it entails high packing maintenance and high replacement cost of the parts in direct contact.

The matter of installation cannot be given too much consideration. Very often, especially in the case of extremely small centrifugal pumps (as chemical-feed pumps) these same are for reasons of mistaken economy, tucked into inaccessible places where inspection and maintenance are extremely difficult. One large chemical company has found that placing centrifugal pumping equipment in a clean, well-lighted place results in reducing the cost of maintenance of the pumps involved by 50%. Placing pumps in such a position and elevating especially small units on pedestals so that they are at chest height to the average workman, is an indicated *must* for low pump maintenance. When you are considering the placement of centrifugal pumping equipment, remember that no man however skillful can be a good mechanic and an acrobat concurrently.

It is unfortunate that peak production and wartime maintenance are seemingly mutually exclusive. To work out the problem of increased maintenance and better broader more complete maintenance is squarely up to the individual mills themselves. Even at the expense of decreased output due to shutdowns, more than routine inspections and repair operations must be had, if present equipment is to last.

Record-Keeping

The maintenance of pumping equipment is best handled as a routine matter with a definite plan. Maintenance does not require an individual with an insight to occult happenings. Gremlins may exist and hamper the efforts of aviators many thousands of feet above the earth. I have yet to see a substantiated, authenticated instance of their machinations in a paper mill. Breakdowns of machinery do not "happen"—they are *caused,* and it is well within the premise of every maintenance man to investigate the causes of such breakdowns and eliminate them. The most successful manner in which this can be done, is to have periodic inspection periods and to make a record of even the most trivial fact as disclosed by the inspection; each piece of equipment should have its corresponding card in the Maintenance Engineer's file and this should disclose, and be a record of life, of the particular piece of equipment. Thereon should appear the date of installation, all the manufacturer's designations, findings on periodic inspection, replacements, and any peculiarities observed during outage or operational period. Such a file becomes a life history of the equipment. If it discloses as times goes on, that the piece of equipment or any of its component parts, are not coming up to expectation, or are failing at an unexpectedly rapid rate, an immediate investigation should be instituted to uncover the cause of such a circumstance.

If the cause of such an unusually high maintenance point is not immediately discernible, you should call upon the manufacturer of the equipment immediately, since no one knows the piece of equipment more intimately, no one has a wider experience with the application and usage, and more likely than not the particular problem at hand can be quickly solved.

In the event that equipment is to be transferred from one duty to another, it is well to consult the manufacturer in any case. Do not apply equipment to pressures, speeds, and temperatures, for which it was not designed.

FROM THIS ART GREW TODAY'S PRODUCTION PAPER MILL

In 1689 it was the art of paper making—production limited to the individual effort of the paper maker. From this art grew today's modern production paper mill where tons are produced faster than the early paper maker produced sheets. But, even he used felt layers to remove water from the sheets, put between felt layers and pressed. Today felts are as important as then, having kept pace with paper making. Since 1890 Appleton Felts have met all requirements of paper mill production, year after year.

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This advertisement is a continuation of a series started in 1940 depicting early history of paper making.

APPLETON WOOLEN MILLS. APPLETON. WIS.

MAINTENANCE
has a New and more Vital Significance

• The conditions under which paper mills are operating today makes maintenance of equipment more essential than ever. Not only is equipment required to do more—calling for maximum operation as well as maximum efficiency—BUT IT MUST LAST LONGER. This is due to no lack of consideration for the importance of the paper industry's products—no lack of appreciation for the paper industry's great contribution to the war-winning program. It is altogether a matter of meeting the tremendous needs of, and obligations to the men who fight . . . and no patriot would have it otherwise.

As a means of increasing the life and maintaining the high efficiency of Stickle Equipment, we suggest constant watchfulness. Get "on top" of any small weakness, the moment it develops. Anticipate it—be ahead of it, if possible. Not only will it be less expensive to "cure", but it may require less time and less material to do it. It may also avoid a delay in production.

If your Stickle Equipment has not been thoroughly checked recently, it might be wise to ask one of our engineers to come to your plant to do this. Such service comes at nominal cost, and, represents a good investment. If it should result in saving equipment, now difficult to replace, or avoiding a shutdown, the value is increased.

AFTER VICTORY

• While Stickle production, directly or indirectly, is devoted exclusively to the war program—we look forward to the time, after victory when we will again help meet the requirements for a bigger and better paper industry. There will be new and improved Stickle Equipment to meet the needs of the new day . . . *In the meantime we will serve you in your current needs to the limit of present day regulations.*

ARMY E NAVY

STICKLE

STEAM SPECIALTIES COMPANY

2245 Valley Avenue **Indianapolis, Indiana**

TAPPI and Superintendents Meet

About 250 attended the first joint meeting of the Northwest Division of the Superintendents Association and the Lake States Section of the Technical Association held in Appleton, Wis., on Saturday, May 22, 1943. John H. Graff presided for TAPPI and John V. Ziemann for the superintendents.

Manpower Symposium

The Saturday morning session was devoted largely to a Manpower Symposium and a brief talk by John Weidner of the Hoberg Paper Company in which he outlined the Cooperative Research Program of Sulphite Waste Liquor which is being carried on for several Wisconsin mills.

R. M. Radsch of the Appleton Machine Company presided at the first general session and was assisted by C. E. Jackson of the Consolidated Water Power and Paper Company who introduced the speakers. The first speaker was Dean Wm. H. Spencer of the University of Chicago and Regional Director of the War Manpower Commission, who discussed the efforts of the W.M.C. in adjusting the supply and demand for labor. He described the war manpower program, training program, absenteeism studies, employment stabilization program, the certificate of availability and industry essentiality.

War Effort Is Most Important Consideration

The second speaker was the very dynamic Lt. Col. George A. Irwin, Selective Service Liaison Officer who pointed out that every man under 45 is definitely in the Army and if at present not in uniform is either loaned to industry or agriculture or being held in reserve for possible future needs. The most important consideration is "Where can a man make the most effective contribution to the war effort." Employers believing that certain skilled individuals should be deferred on this basis were advised to supply their local draft boards with form 42A filled out in simple and clear language. It is up to the local board to make the decision and they should be assisted by being supplied with information as soon as possible and not after a man has been notified of his induction. The employee replacement schedule should be filed with the State Director of Selective Service as soon as possible.

Robert C. Beha of the Regional W. M. C. Information Service discussed the Manning Tables, training agencies, training within industry, N.Y.A., U.S.E.S. and the Selective Service System.

Need for Research Efforts

The guest speaker at the luncheon was Westbrook Steele, Executive Director of the Institute of Paper Chemistry who outlined the need for continued and positive research efforts on the part of the industry to meet the wartime requirements and post war problems.

The afternoon program consisted of three group meetings. John H. Graff, chairman of the Lake States Section, led a business discussion covering organization affairs. Sylvester E. Tomczak of the Rhinelander Paper Company led a discussion of pulping problems and Howard Richmond presided at a session in which J. W. Appling of the Institute of Paper Chemistry talked on "Friendly Microorganisms in the Paper Industry".

The discussion sessions were followed by a golf and a horseshoe pitching tournament.

Lake States Section Elects Officers

A banquet was held in the evening, following which a resolution was passed thanking the Appleton Vocational School for the use of its auditorium for the war manpower symposium. The Lake States Section elected the following officers for the coming year: Chairman—T. R. Probst, Gilbert Paper Company, Menasha, Wis.; Vice Chairman—J. P. Weidner, Hoberg Paper Mills, Green Bay, Wis.; Secretary-Treasurer—H. P. Dixson, Jr., Fox River Paper Company, Appleton, Wis.; Executive Committee—John H. Graff, Institute Paper Chemistry, Appleton, Wis.; G. F. Enderlein, Mosinee Paper Mills, Mosinee, Wis., and H. A. Du Bois, Kimberly-Clark Corporation, Neenah, Wis.

Brief talks were given by John Goodland, mayor of Appleton, Grover Kieth, president of the superintendents association, and R. G. Macdonald, secretary-treasurer of national TAPPI. W. H. Swanson, former President of TAPPI, presented the Lake States Section award of a 25 dollar war bond to Mr. McMaster of Green Bay for a paper offered in the junior prize paper competition.

Ralph A. Hayward Speaks

The principal speaker was Ralph A. Hayward of the Kalamazoo Vegetable Parchment Company and president of the Technical Association who discussed informally many of the economic problems that face the pulp and paper industry. He pointed out the historic background of Government-Industry relations that have led up to the present supply-demand situation and showed how the attitude of Washington has been gradually forced to change over in the past few years. Now the industry is not only considered essential but is rapidly attaining a critical status. Mr. Hayward explained the tremendous capacity of this country to build up its paper inventories and how difficult it is at any time to estimate consumption. He warned the manufacturers who have developed substitute products for other materials to continue their research to be sure that in untility and merchantability that their product is better than he product being replaced so that the market can be retained after the war. The growing shortages of pulpwood due to manpower and transportation was indicated as the basis for predictable shortages that may lead to curtailment of paper production in one form or another unless the industry develops ways of meeting the demand in the face of these possibilities. Such procedures as reuse of old papers, deinking, greater use of groundwood and unbleached pulps, mill operating efficiency, and decreased basis weights, are some of the ways that will enable the industry to meet the demands to be imposed.

I. R. Canfield Joins Armed Forces

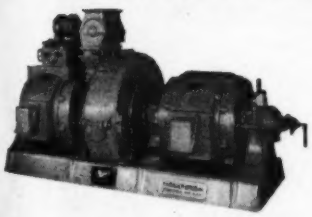
[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 10, 1943—Irving R. Canfield, well known in New York State as representative for Carter Rice & Co., Corporation, has now joined the armed forces and is at present stationed at Atlantic City.

WITH THE DAWN WILL COME MILL PROBLEMS AND CHANGES

Included in post-war replacement and improvement programs will be plans to strengthen stock preparation procedures. That will involve new pulping and refining equipment which suggests early mill planning.

Bauer engineers are, therefore, at your service. They stand ready to demonstrate the advantages Bauer pulpers may hold for you, the benefits many mills are already obtaining through their use. Bauer experimental pulp laboratory available to all mills for stock study.



Maintenance parts and supplies shipped promptly. New equipment available when essential to War program.

The **BAUER BROS.** Co., Springfield, Ohio

SIMPLICITY

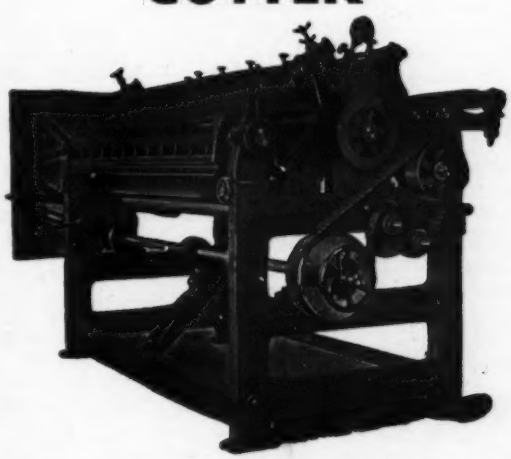
NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

MODEL 28

ROLLER BEARING CUTTER



HAMBLET MACHINE CO.

LAWRENCE, MASS.

MAKERS OF

SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

New York Paper and Pulp Market Review

Paper Demand Continues Active—WMC Lists Essential Types of Paper and Paper Board and Occupations in Paper and Pulp Industry—Pulp Market Strong—Waste Paper Market More Active.

Office of the PAPER TRADE JOURNAL.
Wednesday, May 20, 1943

Paper continues to be reported in active demand in the wholesale market, with orders maintained at a relative high level in major grades, according to most reports received this week from many manufacturers' representatives, jobbers, and general paper merchants.

The index of general business activity rose to an all-time high of 141.6 for the week ended May 15, from 140.0 for the previous week, and compared with 132.6 for the corresponding week last year. The index of paper board production was 158.9, compared with 156.3 for the preceding week, and with 148.5 for the corresponding week last year.

Paper production for the week ended May 15 was estimated at 91.4%, compared with 97.8% for 1942, with 98.6% for 1941, with 91.7% for 1940, and with 81.5% for the corresponding week for 1939.

Paper board production for the week ended May 15 was 96.0%, compared with 82.0% for 1942, with 84.0% for 1941, with 92.0% for 1940, and with 57.0% for the corresponding week for 1939.

The War Manpower Commission has announced that 29 types of paper and paper board, and pulp and pulpwood production are essential. The WMC lists in Activity and Occupation Bulletin No. 27, the essential occupations for the paper industry. Bulletin No. 7 lists essential activities and occupations in the forest industries.

Wood Pulp

The chemical wood pulp market is strong, with demand in excess of supplies in some grades. Bleached sulphite and sulphate and good grades of unbleached sulphite are scarce. The lower grades of all types are more active this week. Demand for the newsprint grade of unbleached sulphite is improved. This is expected to continue as more and more lower grade pulp must be added for blending with the higher grades. The raw material fiber supply situation is now critical and is likely to become more acute in the future.

Rags

Mill buying of white shirt cuttings and unbleached cuttings continues to be reported as light. Sales of medium grade colored cutting are active.

The old cotton rag market is active under a strong, steady demand from roofing mills.

Old Rope and Bagging

The old rope market continues strong, with supplies of old No. 1 Manila rope limited.

Scrap bagging is reported firmer at this date, largely due to the limited supply situation. All bagging prices continue nominal.

Waste Paper

The paper stock market is firm under steady mill buying. Old kraft and corrugated are reported in light supply. A renewal of the waste paper collection drive and the wider use of waste paper for de-inking, is expected to at least partly remedy the anticipated tight supply situation in wood pulp in the future.

Twine

Demand continues good for all grades of twine. The market situation is strong, with government requirements reported heavy for all standard grades of twine and cordage.

Johnstone Slitter Wheel Grinder

A meritorious feature of the Johnstone slitter wheel grinder, manufactured by the Johnstone Engineering and Machine Company, Downingtown, Pa., is that it will recondition any standard 3-inch score cutter slitter in a fraction of the time generally required.

The Johnstone grinder, illustrated herewith, is simple to operate and gives master mechanic accuracy.

SAVES TIME AND GIVES ACCURACY

By its use, time is saved and other equipment may be released for important war work.

With the Johnstone slitter wheel grinder, slitter wheels are instantly clamped into correct grinding position and easily fed to the large 4-inch O.D.x⅜-inch grinding wheel. It is fitted with dust-sealed ball bearings, in which a 1-inch grinding wheel spindle operates. By means of a smooth acting transverse lever, the wheel is passed across the grinder face.

The Johnstone slitter wheel grinder can be plugged into any lighting circuit. It is 20 inches wide, 26 inches deep and 10 inches high, weighs 170 pounds and will fit on a portable stand or work bench.

Federal and Midvale Merge

HUDSON, N. Y., May 17, 1943—The Midvale Paper Company, Inc., of Rossmans, has been merged with the Federal Paper Board Company, Inc., according to papers on file in the office of County Clerk Grant A. Miller. The certificate of merger states that the two firms are in the same business and that the Federal Corporation owns all the stock of the Rossmans firm. Through the merger, the Federal assumes all property and obligations of the Midvale. The merger certificate was signed by Alfred G. Freas, Williamsport, Pa., and John R. Kennedy, Rockville Center, L. I., vice president and treasurer of the Federal Corporation.

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

OPPORTUNITY

IN CHEMICALS AND PLASTICS FIELDS

A CHEMICAL COMPANY IN EASTERN PENNSYLVANIA WITH EXCELLENT REPUTATION AND FAVORABLE POSITION IN SEVERAL RAPIDLY DEVELOPING FIELDS OF CHEMISTRY, INCLUDING PLASTICS, WANTS MEN FOR ITS MANUFACTURING DEPARTMENTS. IMMEDIATE EMPLOYMENT AT GOOD PAY WITH EXCEPTIONALLY ATTRACTIVE POSTWAR PROSPECTS FOR MEN WHO LIKE PRODUCTION WORK AND ARE NOT AFRAID OF NIGHT SHIFTS. COMPANY HAS IN MIND MEN BETWEEN 25 AND 35 YEARS OF AGE WITH AT LEAST TWO YEARS OF COLLEGE CREDITS OR EQUIVALENT IN NIGHT SCHOOL COURSES. MEN OF HIGH QUALITY WANTED WHO ARE NOT NOW EMPLOYED IN ESSENTIAL WAR INDUSTRIES REQUIRING THEIR MAXIMUM SKILL, AND WHO APPRECIATE THE OPPORTUNITY FOR ADVANCEMENT AND PERMANENCE WHICH THE CHEMICAL INDUSTRY OFFERS. LETTERS WILL BE TREATED IN CONFIDENCE. *ADDRESS BOX 43-298 CARE PAPER TRADE JOURNAL.* M-27.

PRICE & PIERCE ltd.

Wood Pulp & Paper Agents

60 East 42 Street
New York, N. Y.

TIMBER

In The War Effort

TIMBER is one of the vitally important raw materials necessary in the conduct of war.

THROUGH its forestry program the Seaboard Air Line Railway is promoting timber growing in the South in accordance with the concepts of sound forestry practices.

THIS HELPS not only to insure an adequate supply for our war needs but also to build up our forests for the future benefit of our wood-using industries.

INDUSTRIAL DEPARTMENT

SEABOARD
AIR LINE RAILWAY

Warren T. White
General Industrial Agent
Norfolk, Va.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, May 26, 1943.

BLANC FIXE—Prices on blanc fixe are firm and continue unchanged at prevailing market levels. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b., works. Demand reported fair for the week.

BLEACHING POWDER—Prices on bleaching powder are firm. Current demand reported active. Bleaching powder is currently quoted at $2.50 per 100 pounds, in drums, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 100 bags or more, 21 cents per pound; 20 bags, 21¼ cents per pound; less than 20 bags, 21¾ cents per pound, f.o.b., shipping point.

CAUSTIC SODA—Prices on caustic soda are reported unchanged. Demand for the current week is reported active. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged. Demand reported fair for the current week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Market is reported easier, as supplies are liberal relative to current demand. Chlorine is currently quoted at from $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on some grades of rosin are higher for the current week. "G" gum rosin is currently quoted at $3.55 per 100 pounds in barrels, Savannah. "FF" wood rosin is currently quoted at $3.46 per 100 pounds in barrels, New York. Seventy per cent gum rosin size is currently quoted at $3.74 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand reported moderate for the current week. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand improved. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue to be reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Supply more limited for the current week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at from $1.75 to $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $16 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract...*	$54.00	@	—
Sheets	62.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping...	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag.....	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1.....	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1¼....	1.00	"	—
White No. 2.....	.90	"	—
Anti-Tarnish M.F..	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet...	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.....	2.60	"	—
Bleached, Jr.....	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute.....11.25		@	—
No. 1 Manila Wrapping, 35 lb.....	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.....	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards....	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

100% Rag Est.	Bonds	Ledgers
No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.09 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1..	$10.55@$12.75	$11.70@$14.25
No. 2..	9.65 " 11.75	10.80 " 13.25
No. 3..	9.20 " 11.25	10.35 " 12.50
No. 4..	8.90 " 10.75	10.05 " 12.25

Colors $1.09 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated...	$13.65	@	$15.50
No. 2 Glossy Coated...	12.40	"	14.00
No. 3 Glossy Coated...	11.60	"	13.25
No. 4 Glossy Coated...	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset.....	9.60	"	11.00
A Grade E. F.....	9.35	"	10.75
A Grade S. & S. C....	9.60	"	11.00
B Grade E. F.....	8.85	"	10.25
B Grade S. & S. C....	9.10	"	10.50
C Grade E. F.....	8.55	"	9.75
C Grade S. & S. C....	8.80	"	10.00
D Grade E. F.....	8.25	"	9.50
D Grade S. & S. C....	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite.....	$76.00
Unbl. Softwood Sulphite.	65.00@ 66.00
Bl. Hardwood Sulphite.....	73.50
Unbl. Hardwood Sulphite....	63.50
Bl. Mitscherlich.....	81.00
Unbl. Mitscherlich.....	72.00
N. Bleached Sulphate.....	86.00
S. Bleached Sulphate.....	79.00
N. Semi-Bleached Sulphate...	62.00
S. Semi-Bleached Sulphate....	75.00
N. Unbl. Sulphate.....	73.00
S. Unbl. Sulphate.....	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area).....	10.50
West Coast (out area).....	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area).....	9.50
West Coast (out area).....	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area).....	7.50
West Coast (out area).....	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

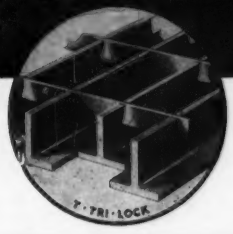
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1..	6.50	@	7.25*
Silesias No. 1.. ..	—	"	5.75*
New Unbleached...	6.75	"	7.50*
Blue Overall.....	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

Specify
TRI-LOK
OPEN STEEL FLOORING • SAFETY STEPS
CONCRETE ARMORING T. TRI-LOK

Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.



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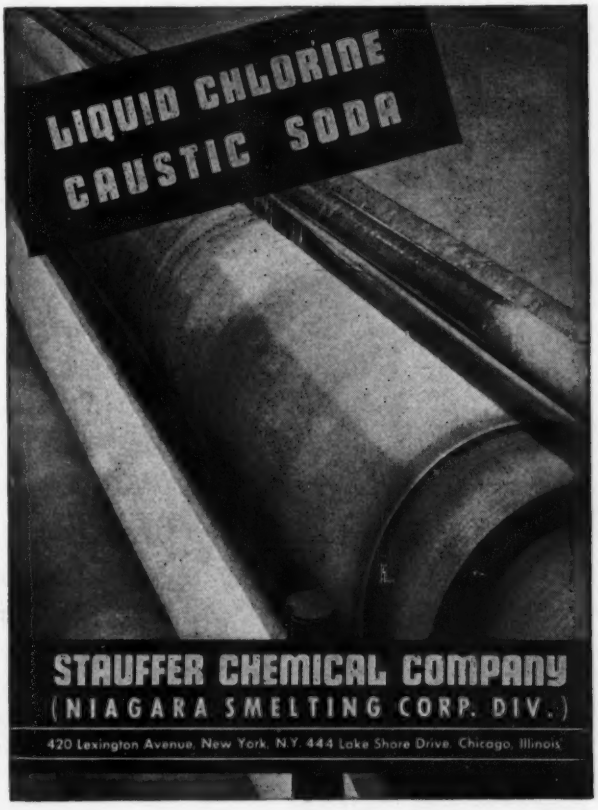
300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES

More than just a TRADE MARK

EXCELSIOR Woolen Co. KNOX Camden, Me. FELTS & JACKETS

BUT also a guarantee by men who for 78 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

KNOX WOOLEN CO.
CAMDEN. MAINE.



STAUFFER CHEMICAL COMPANY
(NIAGARA SMELTING CORP. DIV.)
420 Lexington Avenue, New York, N.Y. 444 Lake Shore Drive, Chicago, Illinois

Langston

SHEAR CUT
CLEAN CUT

SLITTERS AND ROLL WINDERS
keep ahead of the paper machine and deliver solid, true rolls of uniform density.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey

W. & L. E. GURLEY

Established 1845
Manufacturers of Instruments for Paper and Textile Testing
(Porosity — Smoothness — Softness — Stiffness — Curl — Shrinkage — Sizing)
Engineering and Surveying
Hydraulic Engineering
Aeronautical Navigation
Meteorology
Standard Precision Weights and Measures
Catalogs sent on request
TROY, N. Y., U. S. A.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	@	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old Kraft Corrugated Containers	1.50	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¾	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¼	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	4.00
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.60	"	3.85
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	4.65	"	4.87½
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—*

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¾	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—